



# Governance of Urban Sanitation in Kampala and Kigali

the role of the government

**Seleen Suidman**

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# Abstract

This research shows the influence of the government in the governance of urban sanitation in Kampala and Kigali and whether it explains the difference between the coverage rates of urban sanitation. Access to sanitation is still a problem in many countries in the world, and due to dynamics as urbanization, population growth and poverty, this is most pressing in urban areas. However, in some countries the sanitation coverage is higher than in others; Rwanda's urban sanitation coverage rate is almost twice as high as Uganda's rate. To see whether this can be explained by the way of governance and the role of the government, interviews were conducted with several governmental and non-governmental actors involved in the sanitation sector in Kampala and Kigali. In Kampala the way of governance is open and cooperative among the actors involved, while in Kigali it is a hierarchical way of governing by the governmental actors based on strict rules and enforcement. As a result, Rwanda has a higher coverage rate compared to Uganda, but Uganda deals with all steps of the sanitation chain, while some steps, like treatment, are missing in Rwanda. The role of the government, thus, influences the way sanitation is provided, but it cannot be said that one way of governing is better than the other, since both have advantages and disadvantages.

**Keywords** urban sanitation, Kampala, Kigali, governance, Uganda, Rwanda, government, policy arrangement, governance modes, Modernised Mixture approach (MMa), sanitation coverage

# Executive Summary

Access to sanitation is still a problem in many urban areas in the world. It influences the environment, health, clean and safe water and food, human capital, and income, and thus poverty. In some countries the sanitation coverage is higher than in others; according to the data from the World Bank (n.d.), Rwanda's urban sanitation coverage rate is almost twice as high as Uganda's rate. Much is going on in the reduction of poverty and the improvement of sanitation. Multiple organisations, institutions, and governments are involved in the projects and programs that are behind the MDGs and SDGs to improve sanitation and reduce poverty around the world. The governmental actors influence the process as well, however, this differs among countries and cities. The objective of this research, therefore, is to explore the role of the government in the governance of sanitation provision in Kampala and Kigali, which might explain the difference in sanitation coverage between urban Uganda and urban Rwanda.

This thesis uses the Policy Arrangement approach, the theory of Governance Modes and the Modernised Mixture approach in order to analyse the role of the government in urban sanitation in the two cities. The policy arrangement approach has four dimensions which help to analyse the characteristics of the arrangement. Three dimensions form the organisational part of the policy arrangement. This part is analysed using the theory of the governance modes. The fourth dimension entails the substance of the policy arrangement and is analysed using the Modernised Mixtures approach (MMA). The theory of governance modes distinguishes four types of governance; hierarchical, closed co-, open co-, and self governance. The MMA analyses the perspectives of the involved actors on the causes of the current sanitation problem and the approaches to improve sanitation provision in Kampala and Kigali. Three sanitation systems are included in the MMA; conventional, alternative and MMA sanitation systems. Besides, the sanitation systems are assessed along the lines of three criteria – sustainability, accessibility, and flexibility – in order to see whether the systems are adequate sanitation systems.

Combining the theory with the interviews conducted in Kampala and Kigali results in the analysis. The analyses of the governance modes show that the way of governance in Kampala fits best with a mixture of open co-governance and closed co-governance slightly touching upon hierarchical elements as well, and the governance in Kigali fits best with hierarchical governance with a little mix of closed co-governance due to the involved actors. The analyses of the MMA show that the sanitation systems implemented in Kampala for on-site sanitation matches with a MMA, this is also found in Kigali. However, the difference between the two lays in the organisation of the sanitation system; which is quite decentralized in Kampala, while it is centralized in Kigali. Assessing the sanitation systems along the lines of the three criteria shows that sanitation in both cities is still inadequate, much has to be done in order to be adequate sanitation. Since the way of governance in Kigali does not match the sanitation system implemented, it is recommended to transform the way of governance by increasing the participation of actors and stakeholder and make the way of governance practised harmonize with the sanitation system implemented.

The strong enforcement and fast decision making in Kigali increase the actions taken in the process, but also diminish the inclusion of actors and stakeholders; the open process and room for initiatives in Kampala

include the different perspectives on the issue increasing the probability of the projects to succeed, however, the lacking enforcement leads to deterioration or inexistence of improved sanitation facilities. One is not necessarily better than the other; the way of governance in Kigali might create a high coverage rate, it does not improve the other steps of the sanitation chain, due to which it might be less effective in the long run. Looking and learning from each other, combining the best features of both ways of governing might help to improve the sanitation situation in the cities. Since it is argued that a MMA is most sustainable to implement, it is recommended for both cities to continue the way they started – instead of focusing on the implementation of conventional sanitation systems –, but improvement on the three criteria of adequate sanitation is necessary.

This research touches upon some limitations of the MMA. The variables on which the MMA is based are not clearly defined, which makes an analysis more difficult. This research defines the four variables more clearly and creates a four point scale to make the analysis of sanitation systems less vague. Besides, the spatial-technical variable deals with the coverage area as well as with the treatment capacity. Since these two aspects might differ in one city, it is suggested to split this variable in order to recognize the different steps in the sanitation chain.

Based on the analyses done and some observations, recommendations are given to improve the sanitation situation in the cities. First, since sanitation is spread out over several ministries in Kampala, it is recommended to improve the communication between the different ministries or make one institute responsible for all sanitation issues. Second, coordination also becomes difficult if the different working groups meet just once or twice a year. It is thus recommended to meet more often to avoid overlap and increase the cooperation. Third, to increase the initiatives taken in all steps of the sanitation chain in Kigali participation should be more appealing for the private operators. Fourth, updating the policies and regulations is necessary since they are outdated and do not comply with the current situation anymore. Also the technical facilities should be up to date to the current demand. Last and most importantly is that sanitation is no priority. Using sensitization and awareness creation programs could make people aware of the necessity of sanitation and make sanitation a priority at all levels.

All steps of the sanitation chain need to be dealt with in order to provide adequate sanitation. Cooperation of governmental actors with non-governmental actors, clear rules and regulations, and strict enforcement are, therefore necessary. By doing so, the governmental actors and the non-governmental actors together will improve sanitation, increase the opportunities people have, and decrease poverty.

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# List of Abbreviations

AfDB	African Development Bank
AUC	African Union Commission
BMGF	Bill and Melinda Gates Foundation
CBO	Community Based Organisation
CIDI	Community Integrated Development Initiatives
CoK	City of Kigali
CSO	Civil Society Organisation
DDP	District Development Plan
DfID	Department of International Development (of the government of the United Kingdom)
EDPRS	Economic Development and Poverty Reduction Strategy
EU	European Union
EWSA	Energy, Water and Sanitation Authority
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GNP	Gross National Product
GoU	Government of Uganda
IRC	International Water and Sanitation Centre
JMP	Joint Monitoring Programme for Water Supply and Sanitation
JSR <sup>1</sup>	Joint Government/Development Partners Sector Review
JSR <sup>2</sup>	Joint Sector Review
KCC	Kampala City Council
KCCA	Kampala City Council Authority
KPEA	Kampala Private Emptiers' Association
KWSF	Kampala Water and Sanitation Forum
LDC	Least Developed Country
MDG	Millennium Development Goal
MINALOC	Ministry of Local Government
MINECOFIN	Ministry of Finance and Economic Planning
MINEDUC	Ministry of Education
MININFRA	Ministry of Infrastructure
MINISANTE	Ministry of Health
MMA	Modernised Mixture approach
MoES	Ministry of Education and Sports
MoF	Ministry of Finance, Planning and Economic Development

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<sup>1</sup> JSR in Kampala.

<sup>2</sup> JSR in Kigali.

MoH	Ministry of Health
MoLG	Ministry of Local Governments
MoU	Memorandum of Understandings
MoWE	Ministry of Water and Environment
NDP	National Development Plan
NEMA	National Environmental Management Authority
NGO	Non-Governmental Organisation
NWSC	National Water and Sewerage Corporation
PCEA	Private Cesspool Emptiers' Association
REMA	Rwanda Environmental Management Authority
RURA	Rwanda Utilities Regulatory Agency
SDG	Sustainable Development Goal
SSP	Sector Strategic Plan
SWG	Sector Working Group
UN	United Nations
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNICEF	United Nations Children's Fund
USA	United States of America
USAID	United States Agency International Development
USD	United States Dollar
UWASNET	Ugandan Water and Sanitation NGO Network
VIP	Ventilated Improved Pit Latrine
WASAC	Rwandan Water and Sanitation Corporation
WASH	Water, Sanitation and Hygiene
WATSAN	Water and Sanitation
WB	World Bank
WFP	Water for People
WHO	World Health Organisation
WSP	Water and Sanitation Programme



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# **1 Introduction**

## **1.1 Problem Description**

I think it is important that everyone has the same chances and possibilities to achieve his or her dreams and ambitions. In fact, equality between people is an important human right (United Nations [UN], 1948). This does not mean that all people have to be or do the same, rather it means that everyone can “lead the kind of lives they value – and have reason to value” (Sen, 1999, p. 18). Therefore, it is important that all people have the same opportunities and possibilities to make their own choices and to achieve the dreams and ambitions they value, regardless of their gender, religion, culture, ethnicity, genes, family, age, sexual orientation, language, physical and mental health, and all other aspects that differ between people. However, everyone is treated according to these differences, if not on purpose, unconsciously people’s characteristics influence the interaction between people. Furthermore, the surroundings also influence people, since norms, values, and (natural) resources differ around the world and determine the circumstances people live in. This makes it impossible to make decisions without concerning these external influences, consciously or unconsciously.

In some countries or groups these external influences affect the decisions people make or have to make more than in others. Families with few resources are not able to let their children study and therefore these children have different or less opportunities than children from families with plenty of resources. To give both these children the same chances in life it is important that the resources are as equal as possible, so that the possibilities of these children are the same.

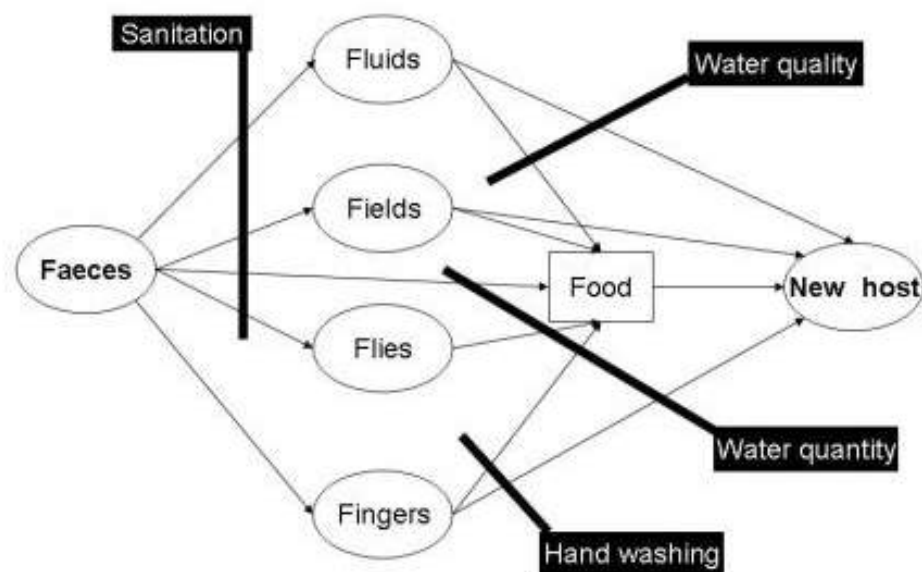
However, the world is far from reaching such an equal situation and therefore it is important to take action one way or another. One major aspect that influences unequal situations of people is poverty, because poverty limits the resources people have and therefore limits the possibilities in their lives. Thus in order to reach more equality, poverty has to be reduced and in the end eliminated. There are several ways to reduce poverty, for example, by educating people, increasing the access to health facilities, increasing economic opportunities and providing everyone with clean and safe water and food. A key factor contributing to a lack of good health, and clean and safe water and food and thus contributing to high levels of poverty in developing countries is “poor sanitation” (Hendriksen, Tukahirwa, Oosterveer, & Mol, 2012, p. 99).

### **1.1.1 Effects of Sanitation**

The effects of sanitation are well depicted in the ‘F-diagram’ in [figure 1](#). The F-diagram shows the pathways from human waste to food and a ‘new host’. The faeces transmit their “disease-causing agents” through fluids, fields, flies, and fingers to the food of people and to a new host (Black & Fawcett, 2008, p. 74). Implementing sanitation systems, improving water quality and quantity, and washing hands can block these agents from reaching the food or person, and thus prevents the human faeces from polluting the environment and transmitting diseases (Prüss-Üstün, Bos, Gore, & Bartram, 2008). Without the blockage, the faeces can enter the fluids and fields generating “a wide range of chemical pollutants and pathogenic contaminants” that have a huge effect on the ecosystems, the environment, and public health (UN World Water Assessment Programme [WWAP],

2016, p. 20). Besides the fact that the flora and fauna of ecosystems will change, degrading ecosystems also “exacerbate the frequency and impact of droughts, floods, and other natural hazards” (Stockholm International Water Institute [SIWI], 2005, p. 8), influencing the livelihoods of many people and animals. Moreover, polluted water functions as a source of infection and is seen as the cause of many health problems, like diarrhoea, cholera, and other water-borne diseases or conditions (Govender, Barnes & Pieper, 2011). Improving sanitation provision, therefore, has a positive effect on the environment and on the health of people.

**Figure 1: The F-diagram; primary routes of faecal-oral diseases**



Source: Wagner & Lanoix (1958) (as cited in Black & Fawcett, 2008, p. 74).

Furthermore, with improved health people tend to spend more time in school and at their job, which increases the educational level and the amount of hours worked. Improved water and sanitation provision also reduces the time and money spent on fetching water, waiting in line for the toilet, and dealing with water-borne diseases (SIWI, 2005; Bosch, Hommann, Rubio, Sadoff, & Travers, 2002). According to Hakro, “443 million school days are lost each year around the world” due to waterborne diseases (2012, p. 27). All this time and money could be invested in human capital or income generation, since, increasing human capital could increase productivity, which increases the income of a person (Anand & Ravallion, 1993; Tilak, 2002). As a result, poverty is reduced, the resources for the poor people rise, due to which there is an increase in possibilities and opportunities to achieve the ambitions and dreams that are cherished.

## 1.1.2 MDG & SDG

Since sanitation has such an impact on health, education, income, and the environment, and therefore on poverty, different movements, institutions, programs and projects are founded to reduce this limitation. On a

global level the United Nations introduced the Millennium Development Goals (MDGs) in 2000, eight goals and 21 targets, helped to reduce poverty over the last 15 years. Since the target date, 2015, has passed these goals have

**Figure 2: Target 6.2 of the SDGs concerning sanitation**

LANGUAGE IN PROPOSED TARGETS		NORMATIVE INTERPRETATION
By 2030, achieve	<b>access</b>	Implies facilities close to home that can be easily reached and used when needed
	to <b>adequate</b>	Implies a system which hygienically separates excreta from human contact as well as safe reuse/treatment of excreta in situ, or safe transport and treatment off-site
	and <b>equitable</b>	Implies progressive reduction and elimination of inequalities between population sub-groups
	<b>sanitation</b>	Sanitation is the provision of facilities and services for safe management and disposal of human urine and faeces
	and <b>hygiene</b>	Hygiene is the conditions and practices that help maintain health and prevent spread of disease including handwashing, menstrual hygiene management and food hygiene
	<b>for all</b>	Suitable for use by men, women, girls and boys of all ages including people living with disabilities
	end <b>open defecation</b>	Excreta of adults or children are: deposited (directly or after being covered by a layer of earth) in the bush, a field, a beach, or other open area; discharged directly into a drainage channel, river, sea, or other water body; or are wrapped in temporary material and discarded
	paying special attention to the <b>needs of women and girls</b>	Implies reducing the burden of water collection and enabling women and girls to manage sanitation and hygiene needs with dignity. Special attention should be given to the needs of women and girls in 'high use' settings such as schools and workplaces, and 'high risk' settings such as health care facilities and detention centres
	and <b>those in vulnerable situations</b>	Implies attention to specific WASH needs found in 'special cases' including refugee camps, detention centres, mass gatherings and pilgrimages

Source: WHO & UNICEF JMP, 2015, p. 2.

been transformed and extended into 17 Sustainable Development Goals (SDGs) with 169 targets set for 2030. These SDGs have continued the job the MDGs started. The “key rationale” for the MDGs concerning water and sanitation, according to Zwane and Kremer (2007), is “the impact of poor quality water on human health” (p. 1). Target 7c of the MDGs states that between 1990 and 2015 “the proportion of the population without sustainable access to safe drinking water and basic sanitation” has to be halved (UN, 2015, p. 58). “2.1 billion people have gained access to improved sanitation” since 1990, but the MDG target is not met, still “2.4 billion people are ... using unimproved sanitation facilities” (ibid). This MDG target is therefore transformed into the 6th SDG, stating

#### Box 1: Improved Sanitation

The JMP is a Joint Monitoring Programme for Water Supply and Sanitation (JMP) founded by the WHO and UNICEF in 1990, which reports on all levels, including global, regional and national, the progress towards the MDGs and the SDGs, concerning water, sanitation and hygiene (WASH) (WHO & UNICEF JMP, 2016, p. 2). The JMP makes a distinction between “improved” and “unimproved” sanitation. Improved sanitation separates hygienically the waste from human contact and strives to reach the MDG and SDG. This includes “flush toilet, piped sewer system, septic tank, flush or pour flush to

pit latrine, ventilated improved pit latrine (VIP), pit latrine with slab, and composting toilet” (JMP, n.d.). Unimproved sanitation is not sufficient to meet the MDG or SDG, it includes “flush or pour flush to elsewhere, pit latrine without slab, bucket, hanging toilet or hanging latrine, shared sanitation, and no facilities or bush of field” (JMP, n.d.). They have developed the service ladder approach to track the progress concerning WASH across countries (see [figure 3](#), WHO & UNICEF JMP, 2015, p. 1).

## Continue Box 1

**Figure 3: Emerging ‘ladders’ for monitoring sanitation post-2015**



Source: WHO & UNICEF JMP, 2015, p. 1 & 5.

For sanitation the ladder is divided into five categories to classify the type of sanitation that is present. The top of the ladder ‘safely managed’ is the addition of the SDG to the MDG on sanitation, and so the difference between the two goals (WHO & UNICEF JMP, 2015, p. 5). Safely managed sanitation is when people use improved facilities, which are not shared with other households. Moreover, the excreta should be “treated and disposed in situ”, “stored temporarily and then emptied and transported to treatment off-site”, or “transported through a sewer with wastewater and then treated off-site” (JMP, n.d.). If the excreta are not safely managed after production, but people use improved sanitation then it is classified as ‘basic’, and when people share their improved sanitation with other households the sanitation is labelled as ‘shared’. The World Bank bases its urban sanitation statistics on the JMP.

that everyone has to have access to water and improved sanitation by 2030 (WWAP, 2016). See [box 1](#) for a brief description of ‘improved’ sanitation, and [figure 2](#) explains the full SDG target concerning sanitation.

### 1.1.3 Sub-Saharan Africa: Uganda and Rwanda

Especially Sub-Saharan Africa is far from reaching the MDGs and SDGs and is lacking behind on the rest of the world considering sanitation provision (UNECA, AUC, AFDB, & MOF, 2015). Between 1992 and 2012, the coverage of sanitation in Sub-Saharan Africa increased from 24% to 30% (World Bank [WB], n.d.). The target set for this region, 66% access to sanitation in 2015, is therefore far from reached (UNECA et al., 2015). North Africa and developing regions<sup>3</sup> improved their access to sanitation way better in the same period, respectively 72% to 91% and 36% to 57% (ibid). Although the coverage in these regions is also not yet 100%, I will focus in this research on sanitation in Sub-Saharan Africa, since there the most progress is needed.

Looking into the sanitation situation of Sub-Saharan Africa I found it remarkable that the sanitation coverage was so different between Uganda and Rwanda; Uganda increased its access to sanitation between 1990

<sup>3</sup> Developing regions include 149 countries or territories that are defined by the UN as developing, including Sub-Saharan African countries. A complete list can be found on [hdr.undp.org](http://hdr.undp.org) (September, 2017).

and 2015 from 13% to 19% of the total population, while Rwanda increased its accessibility from 33% to 62% of the total population in the same period, almost meeting the MDG of 2015 (see [table 1](#)) (WB, n.d). Uganda is therefore below the average of Sub-Saharan Africa, while Rwanda exceeds the average by far. At the same time, both the countries are located in East-Africa<sup>4</sup> and are experiencing the same kind of dynamics; rapid urbanization, high population growth and high poverty rates, all influencing the way sanitation can be and is organised. Since these dynamics are most pressing in urban areas my focus will be on urban sanitation. Only 29% of the urban population in Uganda and 59% of the urban population in Rwanda have access to sanitation, which is far below the global urban coverage of sanitation of 82% (ibid). Table 1 gives an overview of the sanitation provision in Uganda, Rwanda, Sub-Saharan Africa, and the world.

**Table 1: Urban, rural and total improved sanitation facilities (% of population)\***

	Uganda	Rwanda	Sub-Saharan Africa	World
<b>Urban</b>	29	59	40	82
<b>Rural</b>	17	63	23	50
<b>Total</b>	19	62	30	68

Source: WB (<https://data.worldbank.org>) (retrieved September 2016).

\* The percentage of people from the urban/rural/total population that have access to improved sanitation facilities in 2015, according to the WB Database.

It should be noted that the average coverage in urban areas is higher than the total coverage in Uganda, but in Rwanda the total coverage is higher than the urban coverage, which means that the rural areas in Rwanda have a higher percentage of sanitation access than the urban areas, while in Uganda it is the other way around. Furthermore, like the total coverage, the difference in urban coverage between the two countries is noticeable. Drawing upon this observation, this research will focus on sanitation in urban areas in Uganda and Rwanda, taking the capital cities, Kampala and Kigali, as focus areas.

## 1.1.4 Urban

Cities are “among the worst polluted and disease ridden habitats of the world”, which is for a big part caused by inadequate sanitation (Esrey et al., 1998, p. 1). In 2011, 52% of the global population lived in urbanized areas, exceeding the amount of people living in rural areas (Zeeman, 2012). Urban areas discharge up to 90% of their waste in the surrounding rivers, lakes, and coastal zones (Esrey et al., 1998). As a result of a growing population in urban areas due to migration, increasing economic activities, and tourism (Govender et al., 2011; Mohapatra, 2008), the urban population in developing countries is expected to double from 2 billion to almost 4 billion between 2000 and 2030 (SIWI, 2005). The demand for safe drinking water and sanitation in urban areas

<sup>4</sup> East Africa consists of Kenya, Uganda, Tanzania, Rwanda and Burundi (Oosterveer, 2009).



will self-evidently increase, as well as the waste that is dumped, polluting groundwater and surface water (Esrey et al., 1998).

Urban expansion is experienced most in informal settlements, where mainly poor urban people are accommodated (McFarlane, Desai & Graham, 2014; Tukahirwa, Mol, & Oosterveer, 2010; Beller Consult, Mott MacDonald, & M&E Associates, 2004). Informal settlements lack centralized planning from the government leading to low conditions in the areas; small not constructed roads and houses packed together filling as much space as possible, lacking accessibility, infrastructure services, and public facilities (Energy, Water and Sanitation Authority [EWSA], 2016; Joshi, Joshi, Damani, Ng, & Lauwa, 2013; Höhne, 2011). Sanitation in these areas does not comply with the international standards of improved sanitation. Leaving people in informal settlements “more vulnerable than the nonpoor to communicable diseases” (Bosch et al., 2002, p. 375-376). Because of the unplanned characteristic of informal settlements and the high population density, providing services, like water and sanitation, is difficult (Van Crevel, 2015). Besides, most of the time, the low-income people living in informal settlements cannot afford basic housing and thus adequate sanitation (Sander, 2015). Therefore, the problem with sanitation relates mainly to the low-income urban areas, where poverty rates are the highest as well (European Investment Bank [EIB], 2016). Improving sanitation would thus improve the lives of the low-income and most probably reduce poverty.

## 1.1.5 The Role of Social Science and the Role of the Government

The problem with sanitation can be tackled from different angles; for instance, improving the physical infrastructure and sanitation systems would be improving the technical side of the issue. However, the physical design used can be as optimal as is possible, but when people do not know how to use it, or are not aware of the necessity of it, it will not function properly and sanitation will not be improved to the full extent, and, thus, waterborne diseases will still occur. Besides the households using the facilities, there are several other social aspects connected to the sanitation issue in order to make improvement possible. There are, for example, several actors involved in providing sanitation, who have different goals and incentives to participation. All these actors have to communicate and interact in one way or another to improve the sanitation situation, which makes the social process complex. The social side of the issue, therefore, is as important to look at as the technical side, since one cannot flourish without the other. Since I am more interested in the complexity of the social process, this research will focus on the social side of sanitation provisioning.

As has been pointed out so far, this research will focus on the social side of urban sanitation provisioning in Kampala and Kigali. However, since the social side is quite broad and complex, it is necessary to funnel the focus even more. Next to the households, there are multiple organisations, institutions and governmental actors involved in the projects and programs to improve sanitation and reach the MDGs and SDGs. My main interest lies with the governmental actors in providing sanitation facilities. The governmental actors are in many countries quite dominant actors possessing many of the resources, where they make the policies and regulations and enforce the rules, and therefore influence the process. However, there are differences in the way the government interacts with other actors, how the resources are divided among the actors participating, and how influential and powerful the governments are in the process. I would like to explore what these differences are and how they influence the

process of sanitation provisioning and, thus, poverty reduction. It is therefore that I am interested in the role of the government in the process of sanitation provisioning.

## 1.2 Research Objective

As described above, much is going on in the reduction of poverty and the improvement of sanitation. Multiple organisations, institutions, and governments are involved in the projects and programs that are behind the MDGs and SDGs to improve sanitation and reduce poverty around the world. I am interested in the role of the government in the process of sanitation provision, and thus poverty reduction. Therefore, I will focus on how sanitation is governed by analysing the actors involved, what their resources, power and influences are, how they interact with each other, and what their perspectives are on the problem and possible solutions concerning sanitation. After this I will come back to the role of the government in specific.

As mentioned before, according to the data from the World Bank (n.d.), Uganda's sanitation coverage is below the average of Sub-Saharan Africa and therefore far from reaching the MDG and SDG on sanitation provision set for 2015 and 2030. In the same region, dealing with the same challenges, as population growth, urbanization, and poverty, Rwanda's coverage exceeds the Sub-Saharan average and is on track to meet the SDG for sanitation. Since the pressure of rapid urbanisation, high population growth and high poverty rates is highest in urban areas and the difference between the urban coverage rates of Uganda and Rwanda show the same pattern as the national coverage rates, the focus of this research will be on Kampala and Kigali, the two capital cities of the country.

The objective of this research, therefore, is to explore the role the government has in providing sanitation for its citizens, because the government can be of great influence due to its accessibility to resources and power. Analysing the influence of the government concerning its role in the governance of sanitation provision in Kampala and Kigali might explain the difference in sanitation coverage between urban Uganda and urban Rwanda. Making a comparison will make it possible to see what kind of governance is practised in providing sanitation in urban areas in two East African countries.

This research adds to the already existing knowledge, since it analyses and compares the way sanitation provision is governed in two different areas. Besides, it functions as an update to research done before about the governance of sanitation provision in Kampala (Tukahirwa, 2011; Letema, 2012) and Kigali (Sano, 2007; Höhne, 2011), since these cities are changing rapidly and many efforts are done to improve sanitation and reduce poverty.

## 1.3 Research Questions

One main research question and three sub research questions are formulated to analyse the role of the government in sanitation provision in urban areas:

How can the difference in coverage of sanitation provision be explained by the role of the government in the governance of sanitation provision in Kampala and Kigali?

- What is the current situation of sanitation in Kampala and Kigali?
- What kind of governance is practiced and what is the role of the government in sanitation provision in Kampala and Kigali?
- What are the similarities and differences between the governance and the role of the government in the governance of sanitation provision in Kampala and Kigali?

## 1.4 Research Outline

This chapter has introduced the problem on which this research is based. In [chapter 2](#) the theoretical framework will be explained. Subsequently, the methodology [chapter](#) describes the approach used to answer the main research question and the three sub questions. This is followed by the empirical data found on Kampala ([chapter 4](#)) and Kigali ([chapter 6](#)), which give a description of the sanitation situation and the way sanitation is governed in the two cities. The empirical chapters are each followed by an analysis for each city ([chapter 5](#) and [7](#)), in which the theoretical framework is connected to the empirical data. In [chapter 8](#) the two analyses are compared. The final chapters ([chapter 9](#) and [10](#)) discuss the findings, touch upon the limitations and recommendations found during the research, form the answers to the research questions, and the conclusions of this research.











## **2 Theoretical Framework**

In this research I will focus on the governance of sanitation provision in Kampala and Kigali. Governance is seen as a conceptual framework of governing, which “can be considered as the totality of interactions, in which public as well as private actors participate, aimed at solving societal problems or creating societal opportunities” (Kooiman, 2003, p. 4). Governance in this research will be analysed using the Policy Arrangement approach, the theory of Governance Modes and the Modernised Mixture approach.

### **2.1 Policy Arrangement**

The policy arrangement approach is used to connect changes going on at a daily basis in policy practises to the “broader, structural changes” in society (Liefferink, 2006, p. 45). It is a “temporary stabilisation of the content and organisation of a policy domain” (Arts, Leroy & Van Tatenhove, 2006, p. 98). It is therefore a useful tool to analyse the governance of urban sanitation. The policy arrangement approach has four dimensions which help to analyse the characteristics of the arrangement; actors and their coalitions; resources determining the power and influence of the actors; the rules of the game; and the policy discourse (Arts & Van Tatenhove, 2005). The first three dimensions form the organisational part of the policy arrangement. This part will be analysed using the theory of the governance modes. Policy discourse entails the substance of the policy arrangement and will be analysed using the Modernised Mixtures approach (MMA). Besides the substance and organisational part of the policy arrangement, the policy arrangement is also determined by a specific time and space context (ibid); in this case, current day Kampala and Kigali. In the next part the dimensions will be explained.

### **Dimensions and their linkages of the Policy Arrangement**

In the first dimension – actors and their coalitions – Arnouts, Van der Zouwen and Arts (2012), define two types of actors that are involved in policy arrangements, namely governmental actors and non-governmental actors. Coalitions are defined as “a group of people of at least two actors that work together to achieve a certain goal” (ibid, p. 45). There are two kinds of coalitions; on the one hand, the supporting coalitions supporting “the dominant policy discourse or rules of the game” and on the other hand, the coalitions that oppose these dominant perspectives; the challenging coalitions (Arts & Van Tatenhove, 2005, p. 342). Actors and coalitions between the actors are taken into consideration when defining this dimension of the policy arrangement.

The second dimension includes the resources actors have. Resources determine power and influence of actors on the process (Arts et al., 2006). Power reflects to what extent the actors use and mobilize these resources, while influence refers to who determines the outcome of the process and how (Liefferink, 2006).

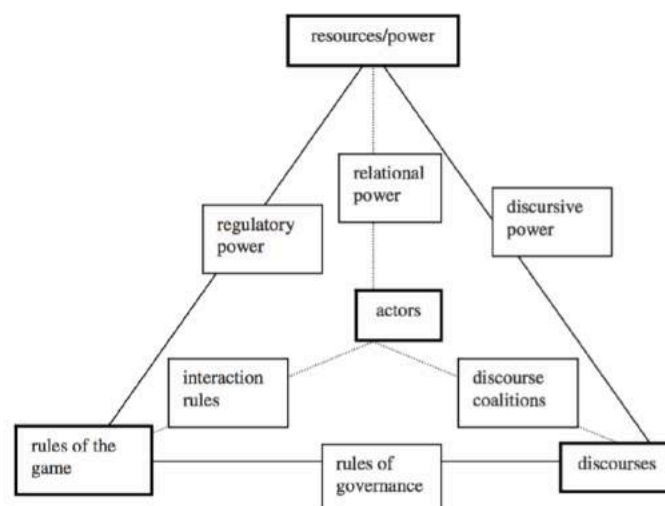
The third dimension influencing the policy arrangement is the “rules that shape the interactions between actors” (Arnouts et al., 2012, p. 45). These interaction rules form “formal procedures of decision making and implementation” and “informal ... routines of interaction”, shaping the behaviour and roles of actors towards each other (Liefferink, 2006, p. 47). There are two kinds of rules included in this dimension; access rules and

responsibility rules. Access rules are the rules defining “which actors (are allowed to) participate” in the policy arrangement, and responsibility rules determine the responsibilities of each actor participating (Arnouts et al., 2012, p. 45). These three dimensions form the organisational part of the policy arrangement which will be analysed using the theory of the governance modes explained later.

The fourth dimension, addressing the content of the policy arrangement is policy discourse. Policy discourse refers to the “norms and values, the definitions of problems and approaches to solutions”, forming the “views and narratives of the actors involved” (Liefferink, 2006, p. 47). There are two levels in the policy discourse; one that focusses on the general ideas of society, while the second level is about the issue at stake, in this case urban sanitation (ibid). Usually there is one dominating policy discourse challenged by other less dominant discourses. Since this research is specifically about urban sanitation, only the second level of the policy discourse will be analysed. The Modernised Mixture approach, explained later, will be used as a framework for this analysis in Kampala and Kigali.

These four dimensions are interrelated, which is necessary to understand when analysing the policy arrangement, because when one of the dimensions changes all the others will be influenced as well (Liefferink, 2006). The four dimensions and their linkages are symbolized in a tetrahedron with each corner reflecting one dimension (see [figure 4](#)). The linkages will be explained shortly. Relational power is the link between the actors and the resources and power and it refers to the “power relation between actors” (ibid, p. 54). Discourse coalitions are the groups of actors formed around a certain discourse, and shows the connection between the actors and the discourses. The interaction rules reflect the link between the actors and the rules through “an ‘actor-based’ analysis” implying “a focus on the rules governing the interaction between actors involved” (ibid, p. 53). Discursive power is the power “to change the content of the narratives ... or introducing ... new ones” (ibid, p. 58). This is the connection between the resources and power, and discourse. Regulatory power is the power to change the rules, showing the link between resources and power, and the rules. The rules of governance connect the rules of the game with the discourses and address “the discourse underlying rules of interaction prevailing in the network. ... these discourses mainly deal with general ideas about governance, i.e. about the relationships between and the share of responsibility of state, market and civil society” (ibid, p. 56).

**Figure 4: The tetrahedron symbolising the interconnectedness of the four dimensions of a policy arrangement**



Source: Liefferink, 2006, p. 60.

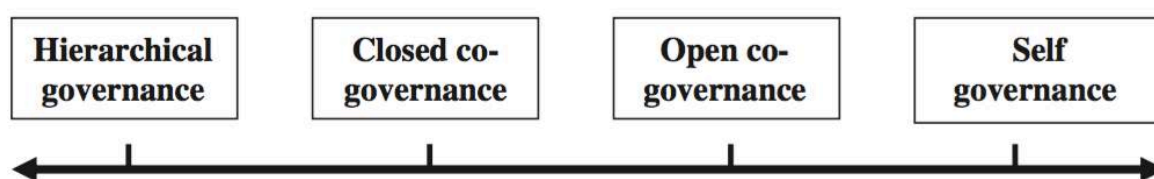


This part briefly explained the four dimensions and their linkages used to analyse a policy arrangement. In the next part the first three dimensions will be connected to four different governance modes that help to analyse the way sanitation is governed in Kampala and Kigali.

## 2.2 The Organisation of the Policy Arrangement: Governance Modes

While using the first three dimensions of the policy arrangement, Arnouts et al. (2012), distinguish four types of governance; hierarchical governance, closed co-governance, open co-governance, and self governance (see [figure 5](#)). These modes of governance are based on the three dimensions of policy arrangement and on the theory of Kooiman (2003) who describes only three kinds of governance modes, combining closed and open co-governance in one mode. The four governance modes are a simplified depiction of four ways of governing. This does not mean that there are just four ways of governing, since ways of governing might overlap several modes and there might be different ways of governing within one mode. Despite this imperfection, the framework helps to analyse the way governance is practised and gives some grip on the situation.

**Figure 5: The governance modes**



Source: Arnouts et al., 2012, p. 45.

### Hierarchical Governance

The first type of governance discussed by Arnouts et al. (2012) is the hierarchical governance mode. In this governance mode the government is the main actor and all the different governmental actors involved are organised in a “strong coalition” (ibid, p. 45). This leaves little room for non-governmental actors, who are only active on the “receiving end” (ibid). Since the government controls most of the resources, it is more powerful and influential than all other actors involved. Governance is thus executed in a top-down fashion, however, this does not mean that the process cannot be democratic. The rules of the game make the government the leading actor, while the rest follows. The government, thus, decides what actors can and cannot participate in the process, and makes sure that the responsibilities assigned to the different actors are met.

In case of urban sanitation in Sub-Saharan Africa, this would mean that the national or local government is the main actor deciding how the process will go, who is allowed to participate and what the task division is. There will be little room for NGOs to help implement projects and programs for the improvement of sanitation provision. Also the households themselves will barely be involved in facilitating their sanitation. The government



is the actor who assigns licenses and tasks to private operators in order to construct, maintain, empty and treat faecal sludge all over the city or it will have its own companies providing these services. Urban areas like Kampala and Kigali are dealing with rapid urbanization, high population growth and high poverty rates, and thus informal settlements. A hierarchical way of governing will probably discard these unplanned areas bit by bit, to replace it with structured neighbourhoods with planned infrastructure.

## Closed Co-Governance

In the second and third type of governance, governmental and non-governmental actors work together in order to realise the intended goal (Arnouts et al., 2012). In closed co-governance a few governmental and non-governmental actors are selected to form a “small and tightly knit coalition” (ibid, p. 45). Since none of the actors can achieve the goal without working together, they depend on each other’s resources creating power division between the governmental and non-government actors. As a result, both types of actors have the same amount of influence and are both participating in the decision-making process. The interaction rules make the two types of actors work together. Cooperation is then created by the division of roles. Access is only granted for those part of the main coalition, who also decide what actors are included and what not. Responsibilities and tasks are shared by the few selected coalition participating.

Connecting this to the Sub-Saharan African context in urban sanitation would mean that the governmental actors do not have a leading role any more as is the case in the hierarchical governance mode. The national or local governmental actors have the same amount of power and influence in providing sanitation as the NGOs, companies or other actors involved. Just a few actors work together towards the goals set for improved sanitation. NGOs are thus allowed to participate in the process and implementation of the project plans. Companies do not necessarily have to be owned by the government, but could also operate on their own initiative. The tasks and areas of the projects will be divided and coordinated by the small coalition of governmental and non-governmental actors, which leads to a rather organised and well structured way of dealing with the issues of sanitation. Although both kind of actors might have financial resources available for sanitation provision, the governmental actors have political legitimacy as well and the non-governmental actors are more familiar with the situation in the communities. Working together is therefore beneficial in providing improved sanitation facilities. Since the NGOs know better what is going on in the different communities, approaches will be adapted more to the local situation, and replacement of the informal settlements will not necessarily be the case.

## Open Co-Governance

In open co-governance actors also work together in order to realise the intended goal, but it is done in a “much more accessible and flexible” way than closed co-governance (Arnouts et al., 2012, p. 45). A large group of governmental and non-governmental actors are involved in the governing process. Moreover, the group is not so tight as in the governance mode mentioned before, rather actors are “loosely bound” to each other, and “organised in several relatively small coalitions that exist beside each other or operating on a more individualistic basis” (ibid, p. 45). All actors control some resources which means that power is distributed over many actors. The resources are mobilized by individual actors or by “small sub-coalitions” (ibid). As a result, many actors have influence to a certain extent, which leads to an “open and rather unorganised decision-making process” (ibid, p.

46). The rules in this governance mode make it possible for all actors involved to take initiative and make the role division a “flexible collaboration between these actors” (ibid). Access is open to everyone who wants to participate in the process and “each actor is responsible for its own activities, only loosely working together with others” (ibid). Closed co-governance is thus a “more restricted, structured and fixed form of governmental/non-governmental co-governing”, while open co-governance is more “flexible and autonomous” (ibid, p. 45).

Open co-governance in the context of urban sanitation in Sub-Saharan Africa means that neither governmental actors nor non-governmental actors have a leading role in provisioning sanitation facilities. Instead, a big group of actors share resources, power and influence and work together in several small coalitions. Due to this the process is quite unorganised, increasing the overlap of activities, projects and areas. In the case of cities like Kampala and Kigali, this would mean that there are many actors active in the neighbourhoods implementing their own projects to improve sanitation. All neighbourhoods are taken care of by several NGOs or municipality projects. The households can choose what operator they want for the provisioning of their sanitation services, like construction, maintaining and emptying of their toilets. Competition between the operators might induce continuous technological innovations. This would mean, for the informal settlements that every community is part of a different project or program and thus sanitation might be improved using different ways; in some neighbourhoods, toilets will be constructed, while in others awareness and mobilization is created in order to empower the people.

## Self Governance

The last governance mode mentioned is self governance. Being the opposite of hierarchical governance, coalitions are formed of non-governmental actors, who are also dominating the process. Governmental actors are included when the members of the coalition choose to include them, nevertheless, they always act from a distance (Arnouts et al., 2012). Although the non-governmental actors are the dominant actors, the resources can still be controlled by the government. However, the mobilisation of these resources is mainly controlled by the non-governmental actors, and thus is the power. Due to this, the non-governmental actors are able to influence the process. The governmental actors only interfere with the process when “certain boundaries” are crossed (ibid, p. 46). The interaction rules in self governance make it possible for the non-governmental actors involved to be autonomous and govern as they wish. The accessibility to participate in the governing process is “open to, and controlled by, non-governmental actors” (ibid). This also means that the non-governmental actors can decide to let the governmental actors participate in the process or not. The non-governmental actors are therefore also responsible for the process.

In self governance, urban sanitation facilities in Sub-Saharan African context will be provided by the non-governmental organisations. NGOs, companies and other operators will lead the process, however, the government is still able to interfere when necessary. The government has a rather monitoring function to make sure that the set rules and standards are not violated. The government is also allowed to participate if the non-governmental actors ask for it. This could be the case if certain rules have to be enforced or a new regulation for sanitation is necessary, according to the non-governmental actors. Since NGOs are more active at community level, this governance mode will be a bottom-up approach towards improvement of the sanitation situation. Therefore, the local context of the different neighbourhoods and communities will be taken into account and informal settlements will be treated differently than higher income areas. This is quite the opposite of the

hierarchical governance mode, where the whole city will be treated the same and informal settlements will be brought into line with the higher income areas.

The previous part briefly explained the four governance modes used in this research to analyse the governance of sanitation in Kampala and Kigali and tried to link the governance modes to the Sub-Saharan African context of urban sanitation. [Table 2](#) gives an overview of the characteristics of the four governance modes.

**Table 2: Characteristics of the four governance modes**

Ideal-typical governance arrangements				
	Hierarchical	Closed co-	Open co-	Self
Actors	Mainly governmental actors	Select mixed group of actors	Large mixed group of actors	Mainly non-governmental actors
Power	With government	Pooled	Diffused	With non-government
Rules	Governmental coercion	Restricted cooperation	Flexible collaboration	Non-governmental forerunning

Source: Arnouts et al., 2012, p. 46.

In the following part, the Modernised Mixture approach will be explained as a tool to analyse the fourth dimension of the policy arrangement of sanitation provision.

## 2.3 The Content of the Policy Arrangement: The Modernised Mixture approach (MMa)

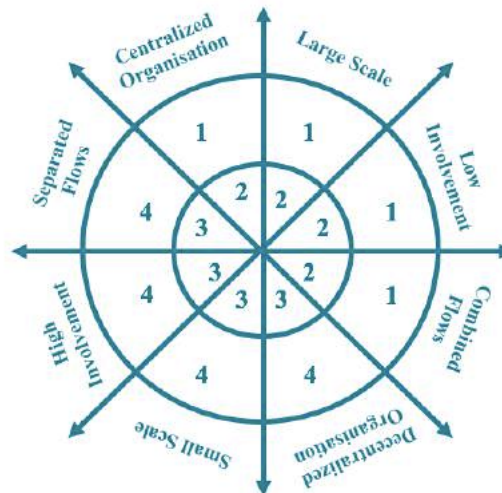
In this part the content of the policy arrangement of urban sanitation in Kampala and Kigali will be explained using different sanitation systems; conventional sanitation systems, alternative sanitation systems, and the Modernised Mixture approach (MMa). As mentioned earlier the content of the policy arrangement is the policy discourse and refers to the “norms and values, the definitions of problems and approaches to solutions” of the actors involved (Leroy & Arts, 2006, p. 14). Considering this research, this includes the perspectives of the involved actors on the causes of the current sanitation problem and the approaches to improve sanitation provision in Kampala and Kigali.

### 2.3.1 Variables of Sanitation Systems

What discourse is present is defined using the four variables of the MMa; centralized versus decentralized organisation; low versus high involvement of end-users; combined versus separated water and waste flows; and large scale, fixed price systems versus low costs, flexible systems (see [figure 6](#)). However, besides the interpretations of Hegger (2007) and Letema (2012), there is no clear description of the variables (Spaargaren,

Oosterveer, Van Buuren & Mol, 2005; Van Vliet, Spaargaren & Oosterveer, 2010; Letema, Van Vliet & Van Vlier, 2012; Van Crevel, 2015). Therefore, this research will use self-defined descriptions based on the existing literature and my own interpretation.

**Figure 6: The scales of the variables of the MMA**



Source: Based on Spaargaren et al., 2005, p. 5; Oosterveer & Spaargaren, 2010, p. 16.

## Organisation

Centralized versus decentralized organisation is referred to as “management of scale of the innovation” (Hegger, 2007, p. 49), “organisational set-up” (Oosterveer & Spaargaren, 2010, p. 16), “the management arrangement for service provision” (Letema, 2012, p. 36), or the “scope of management” (Letema et al., 2012, p. 292). Hegger (2007) and Letema (2012) define it as “the way in which system operation, management and maintenance tasks are divided between provider and consumer actors” (Hegger, 2007, p. 49). In this research, this variable will be about the organisation of the provision of sanitation. In other words, who determines the tasks and roles of the actors involved. Based on Letema (2102) a four-point scale is identified and will help to analyse the level of organisation of the sanitation system in Kampala and Kigali.

1. Governmental agencies; ministries and local authorities;
2. Quasi-public institutions; universities, institutes, schools, hospitals;
3. Private commercial firms, NGOs, CBOs and other organisations;
4. Community, neighbourhoods and households.

Centralized organisation, then, means that solely governmental actors decide what actors participate and what their tasks and roles are. On the other end of the scale is the decentralized organisation. In this extreme, non-governmental actors, including households and communities, decide who is responsible for what task.

## End-User Participation

The variable of end-user involvement is referred to as simply the involvement or participation of the end-users (Oosterveer & Spaargaren, 2010; Letema, 2012). In this research the scale of involvement of the end-users will include which actor executes and implements the tasks determined in the organisational variable and what the role of the households is. The following scale, based on Letema (2012), will be used in this research;

1. No end-user participation; households just pay for the services, while the governmental actors, companies or organisations provide the sanitation services;
2. End-user participation through the creation of awareness, sensitisation and mobilization of the communities and households by programs and projects of NGOs and governmental actors;
3. End-user participation in the operation and maintenance, and in resource mobilisation and selection of utility operators;
4. End-user participation throughout the whole process, including the design and planning phase, the implementation, construction and operation, and the maintenance and finance of the services provided.

High end-user participation means that most of the tasks are executed by the households, communities or neighbourhoods. Low end-user participation is the other extreme in which the governmental actors, companies or other organisations implement the tasks, while the households just pay for the services.

## Sanitary Flows

Combined versus separate waste and water flows are somewhat clearer described in the literature and leave less room for different interpretations. Hegger (2007) defines the two extremes as “single treatment of water combining all water flows to separated systems for different water qualities” (p. 49). According to Höhne (2011), there are several waste(water) flows that can be treated separately, including “urine, feces, flushing water, greywater and stormwater” (p. 16). Greywater is all non-toilet water used in a household, for example, drinking water, laundry, water for food preparation, and water for personal hygiene (Van Buuren, 2010). The first four flows of Höhne together are the domestic waste(water) flow. These wastewater flows will be scaled between combined water flows and separated water flows;

1. All waste(water) flows are combined and treated together;
2. There are two waste(water) flows collected and treated together (either storm water and greywater, or black (urine, faeces and flushing water) and greywater);
3. Storm water, black and greywater are treated separately;
4. All waste(water) flows (urine, faeces, flushing water, greywater and storm water) are collected and treated separately.



## Spatial-Technical

The variable of large scale, fixed price systems versus low costs, flexible systems touches upon the technical characteristics of the infrastructure. It includes the coverage area and the treatment capacity of the sanitation system (Spaargaren et al., 2005; Letema, 2012). The coverage area can be assessed in area size, households or population, in this research the area served by one infrastructure will define the degree of coverage. The treatment capacity is the amount of waste from the sanitation system that is treated at one place. The four points on this scale are based on Hegger (2007) and Letema (2012) and define what part of the urban population is served by the infrastructure:

1. The whole city;
2. A district or division of the city;
3. A community or neighbourhood;
4. A household or a cluster of houses.

Large scale, fixed price system cover the whole city or its districts or divisions. Low costs, flexible systems are designed for the community, neighbourhood, or households.

### 2.3.2 Sanitation Systems

Combining the four variables of the sanitation systems creates 16 possible combinations (see [table 3](#)). These combinations are possible policy discourses of the policy arrangement of urban sanitation. Two of these combinations are the conventional sanitation system (combination 1) and the alternative systems (combination 16). In this part, the conventional sanitation system, alternative sanitation system and MMA will be addressed using the variables of organisation, end-user participation, sanitary flows, and spatial-technical.

## Conventional Sanitation Solutions

Two perspectives concerning urban infrastructure are centralized systems and decentralized systems. The centralized or conventional systems are large-scale, high tech solutions with fixed price systems and low involvement of the end-users, and in the case of water and sanitation the water and waste flows are combined (Spaargaren et al., 2005; Van Vliet, 2006). Some of the advantages of conventional system are; it covers a large area; it is easy to control since just a few actors are responsible and all the water and waste flows are combined and transported to the same place; the systems will most likely not collapse due to “misbehaviour” of one end-user; and it “may lead to economies of scale” (Hegger, 2007, p. 45). However, there is some doubt about the “long term social, economic and environmental sustainability” of such centralized systems (ibid, p. 46).

## Alternative Sanitation Solutions

Opposing this perspective are the decentralized or alternative systems that are small-scale, low tech and low cost solutions with high end-user involvement, where the water and waste flows are separated (Spaargaren et

**Table 3: Possible combinations of sanitation systems**

			Variables of the Sanitation System							
			Organisation		End-User Participation		Sanitary Flows		Spatial-Technical	
			<i>Centralized</i>	<i>Decentralized</i>	<i>Low</i>	<i>High</i>	<i>Combined</i>	<i>Separated</i>	<i>Large</i>	<i>Small</i>
Possible Combinations	1	Conv.	H & C	•		•		•		•
	2		H & C	•		•		•		•
	3		H & C	•		•		•	•	•
	4		H & C	•		•		•	•	•
	5	MMa		•		•	•		•	
	6	MMa		•		•	•		•	•
	7	MMa		•		•		•	•	
	8	MMa		•		•		•	•	•
	9			•	•		•		•	
	10			•	•		•		•	•
	11			•	•			•	•	
	12			•	•			•	•	•
	13	MMa	O & S	•		•	•		•	
	14	MMa	O & S	•		•	•		•	•
	15	MMa	O & S	•		•		•	•	
	16	Alter.	S	•		•		•	•	•

Conv. = Conventional sanitation system

MMa = Modernised Mixture approach

Alter. = Alternative sanitation system

H = Hierarchical governance mode

C = Closed co-governance mode

O = Open co-governance mode

S = Self governance mode

al., 2005; Van Vliet, 2006). Not only the technological aspects of the system should be small-scale, also the social structures surrounding the whole process of sanitation provision should be small-scale and local (Sano, 2007). Decentralized systems could be the answer to the unsustainability of the centralized systems, since there is “the potential for source-oriented and local water treatment, (re)use of various substance and increased involvement of humans in the use of the system”, which is considered to be “a necessary precondition for water and sanitation systems ... to be fully sustainable” (Hegger, 2007, p. 46). However, such alternative systems endanger the scale advantages and increase the risks that come with high involvement of end-users (ibid).

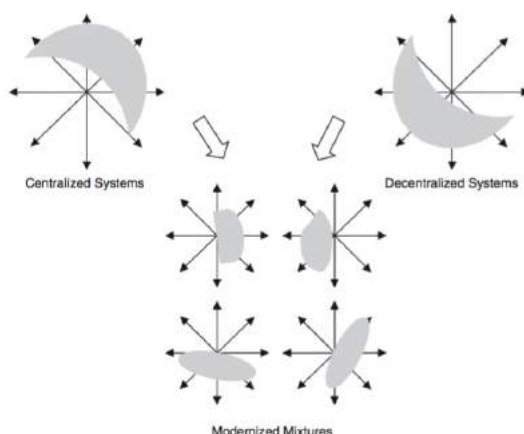
As can be seen in [figure 7](#) the centralized conventional systems include the upper part of [figure 6](#), while the decentralized alternative systems cover the lower part.

## Modernised Mixture approach to Sanitation Solutions (MMa)

Deviating from this dichotomy between centralized and decentralized sanitation systems, is the Modernised Mixture approach (MMa). MMa combines the best features of both perspectives (see [figure 7](#)) creating “the low cost, accessible and robust performance of decentralized systems while at the same time realizing the economies of scales and high urban density-capacity characterizing centralized systems” (Oosterveer

& Spaargaren, 2010, p. 15). By doing so, MMA creates a better fit between the different sanitation options that are possible and the “socioeconomic, ecological, and technological circumstances”, providing “more adequate solutions to the current sanitation problems” in urban areas like Kampala and Kigali (Hendriksen et al., 2012, p. 101).

**Figure 7: Modernised Mixtures (MM) as alternatives to conventional and alternative systems**



Source: Oosterveer & Spaargaren, 2010, p. 17.

As has been explained above, combination 1 of [table 3](#) is the conventional system, combination 16 is the alternative system, the other are possible MMAs. However, in order to be a MMA, all stakeholders involved have to participate in the decision-making process, meaning that national as well as local government, NGOs, other organisations, the private sector, experts, and end users should be involved and discuss the possible solutions to let it succeed (Hendriksen et al., 2012). This means that a MMA can never have low end-user participation and, thus, only combination 5-8 and 13-15 are MMA combinations.

So far the organisational part and the content of the policy arrangement have been discussed by using the theory of the governance modes and the MMA. In addition, these two frameworks will be combined and will form the theoretical framework for this thesis.

### 2.3.3 Adequate Sanitation Systems

When the sanitation system is defined, it is assessed along the lines of three criteria in order to determine whether it is an adequate sanitation solution (Hendriksen et al., 2012). The three criteria are; sustainability, accessibility and flexibility (Spaargaren et al., 2005; Oosterveer & Spaargaren, 2010; Letema, 2012). Sustainability consists of ecological sustainability and institutional sustainability. Ecological sustainability means that the amount of waste that needs final disposal and the inputs, like water and energy, to keep the process going need to be low (Oosterveer & Spaargaren, 2010). Besides, it includes the reuse of “valuable resources” all defining the “environmental profile of the sanitation solutions” (Hendriksen et al., 2012, p. 102). Institutional sustainability refers to the extent a new sanitation infrastructure is able to fit the current socio-political and cultural situation at different levels in the structure of society, like the local and the national level, and improve the performance of this society (Oosterveer & Spaargaren, 2010). Accessibility refers to the extent to which all groups in the society,

so also the poor, elderly, disabled and women, are able to receive sanitation facilities, no matter what their “financial, physical, or cultural” situation is (ibid, p. 17). The flexibility criterion includes the flexibility, resilience and robustness of the sanitation system in order to adapt to the current situation, in the future and during times of instability due to “climatic, political, or economic” changes (ibid). When a sanitation system complies with these three criteria, the system can be considered an adequate sanitation system.

Adequate sanitation solutions are thus, according to the MMA, sanitation systems combining features from both centralized and decentralized sanitation systems taking into account the local context which are ecologically sustainable, institutionally sustainable, accessible for all people, flexible, resilient and robust.

## 2.4 Combining the Governance Modes and the MMA

Although Arnouts et al. (2012) state that it is not possible to connect a certain policy discourse to a certain governance mode, since the governance of policy domains can be similar while the policy discourse is different in each domain and vice versa, I will argue against this statement. The governance modes describe the way a policy arrangement is organised – who is involved; what actors have the resources, power and influence; how do the involved actors interact; and what is the division of tasks. Due to this the governance modes overlap on the organisational variable of the sanitation systems, which includes the actors deciding the task division. Moreover, the governance modes also draw upon the involvement of stakeholders and end-users and what actors execute and implement the set tasks. Therefore, I will argue that the governance modes overlap with the first two variables of the sanitation systems, organisation and end-user participation, and thus a policy discourse can be connected to a governance mode.

The hierarchical and closed co-governance modes have centralized organisation, because the government decides who participates and what tasks and responsibilities are assigned to what actors. Although the end-users pay for the services provided, they will not be included in the execution and implementation of the tasks of sanitation provision in these modes. Since there is little room for stakeholder and end-user involvement in the hierarchical and closed co-governance modes it is highly unlikely that actors involved in such governance modes will adopt a MMA or alternative sanitation system as urban infrastructures, instead, the conventional system or some variations on that, having a centralized organisation and low end-user participation, will be applied without involving the stakeholders (combinations 1-4 in [table 3](#)).

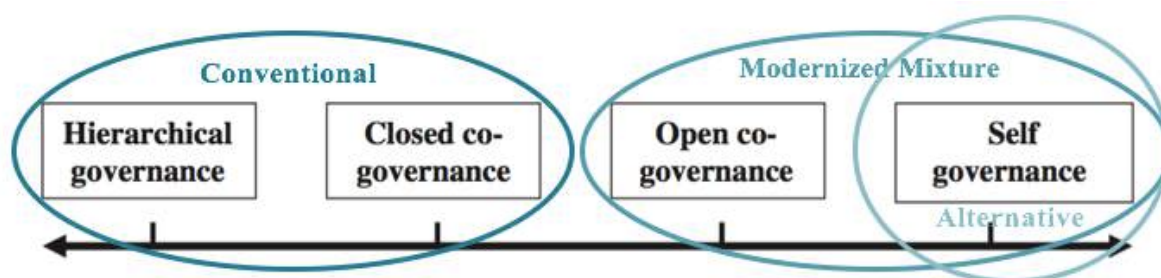
Open co- and self governance modes have decentralized organisations due to involvement of many actors including the non-governmental actors and have high end-user participation, since end-users have more responsibilities towards the provisioning of their own sanitation than just paying for the services. Due to the decentralized organisation and high end-user participation, it is likely that open co- and self governance modes implement a MMA or the alternative sanitation system (combinations 13-16). This last is because the alternative sanitation system (combination 16) has small scale and local social structures and has a high end-user involvement. However, where governmental and non-governmental actors work together in the open co-governance mode, governance is mainly practised without involvement of governmental actors in the self

governance mode, and therefore, the alternative sanitation system fits better with the self governance mode than with the open co-governance mode.

There are eight other combinations (5-12) left that cannot be connected to the governance modes since they do not have the right combination on the organisation and end-user participation variables. Halve of these combinations (9-12) have low involvement of the end-users and can, thus, not be a MMA, according to Hendriksen et al. (2012). The other four (5-8) are possible MMA combinations (see [table 3](#)).

Thus, considering the policy discourse in urban sanitation, it is possible to argue that; the hierarchical and closed co-governance modes will only implement conventional sanitation systems or some variation on it (1-4); the alternatives sanitation system fits best with the self governance mode (16); the MMA can be linked to the open co- and self governance modes (13-15); there are four MMAs that cannot be connected to a governance mode (5-8); the other combinations (9-12) cannot be connected to a governance mode and are no conventional system, alternative system or MMA. [Figure 8](#) and [table 3](#) show the combined theoretical frameworks.

**Figure 8: Modernised Mixture approach and the governance modes combined**



In this section the policy arrangement, governance modes and Modernised Mixture approach are explained and combined. They together form the theoretical framework of this research. They will be used as a tool to analyse the way of governance and the policy discourse of sanitation in Kampala and Kigali, especially focussing on the role of the government in providing sanitation.











# 3 Methodology

In this chapter the methodology of the research will be explained to show how the data is collected, analysed and interpreted, in order to give an answer to the research questions. The main research question is divided into three sub questions (see [chapter 1](#)), answering these three sub questions will lead to an answer of the main question. The methodology will discuss the three sub questions separately taking into account the approach for data collection, analysis and interpretation. Because this research is based on case studies, the first two questions are divided into two questions as well, one for Kampala and one for Kigali. First a short description will be given about a case study, after which the approach to answer the three sub questions will be addressed.

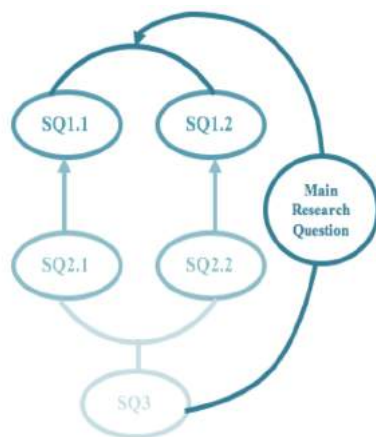
## Case study

A case study is defined in social science as a way to get an in-depth understanding and a multi-perspective view on the complex reality of a certain “project, policy, institute, program or system” (Simons, as cited in Thomas, 2011, p. 512). As Simons (ibid) states, the case study is not the methodology through which the data will be collected, the case is the subject about which an analysis will be done. Cases are demarcated by “places and time periods” and depend on “personal, organizational, or other factors” as well (ibid, p. 512). In this research, it will be about urban sanitation in current day Kampala and Kigali. Since these cities are experiencing rapid change, the time period will be short and continuous research is necessary to stay up to date. This also means that every case is unique and the conclusions of this research cannot be applied to other cities so easily. More research is necessary to see whether there is a pattern that can be generalized and function as a framework in the future.

## 3.1 Main Research Question

*How can the difference in coverage of sanitation provision be explained by the role of the government in the governance of sanitation provision in Kampala and Kigali?*

**Figure 9: The relationship between the questions**



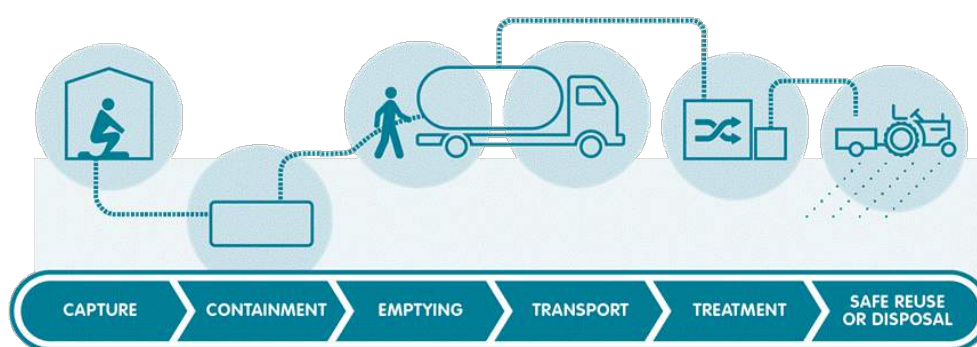
The main research question will be answered by using the answers of the three sub questions. Sub question 1 gives an overview about the current sanitation situation in Kampala (SQ1.1) and Kigali (SQ1.2). Sub question 2 tries to explain why the current sanitation situation is as it is for both cities from an actors’ perspective, and sub question 3 discusses the differences and similarities between sub question 2 of Kampala (SQ2.1) and sub question 2 of Kigali (SQ2.2). The main research question uses sub question 3 to give an explanation for the difference between the answer to sub question 1 for Kampala and sub question 1 for Kigali, which is also the main question. [Figure 9](#) shows the relationships between the questions.

## 3.2 Sub Question 1

*What is the current situation of sanitation in Kampala and Kigali?*

The first sub question is a descriptive question about the current situation of sanitation in the two cases. In order to answer this question, the data necessary is divided into ‘physical’ information about the current infrastructure and the ‘social’ information about the way this infrastructure is managed, organised and implemented. The physical information is collected and discussed along the lines of the sanitation chain, depicted by International Water and Sanitation Centre (IRC) in [figure 10](#), including; capture, containment, emptying, transportation, treatment, and reuse or disposal of faecal sludge. The social information uses the theory of the policy arrangement as a guideline for data collection and analysis (see [chapter 2](#)). To collect the information needed, I went to Kampala and Kigali myself. From the end of November 2016 till mid-January 2017 I was in Uganda spending most of my time in Kampala, and from mid-January till mid-February 2017 I was in Kigali.

**Figure 10: The sanitation chain**



Source: IRC, 2017.

There are three kind of data sources used for this research; literature, observations and interviews. By using this methodological triangulation, I hope to increase the validity and credibility of the research and give a more complete picture of the situation.

### 3.2.1 Literature

The literature used for this research consists of primary sources, like government documents, and secondary sources including academic articles, books, reports of organisations, review articles, and master theses. The literature is found through search engines and send by the people I met for my research.

### 3.2.2 Observations

The observations are mainly used to get a better picture about the situation and to see how the infrastructure functions. Observations do not play a big role in this research and are solely used to understand the way latrines are constructed and emptied, how faecal sludge is treated or where it is disposed. In Kampala I have done three

fieldtrips. One to Ggaba Water Works, which is a water treatment plant of NWSC and pumps water from Lake Victoria to treat and supply for the city. They showed me around at the plant and explained all the different steps of the water treatment. The second fieldtrip was to an informal settlement in the Kawempe division. This trip was organised by the KCCA, who was also there, together with the community leader of the area. We walked around and talked to the people. They showed me their toilets and what happens when it rains. The third trip was to the sewage treatment plant Lubigi, where they also showed me around and explained the different steps of the treatment.

In Kigali I went for three fieldtrips as well. Since I had been in an informal settlement in Kampala I wanted to go to one in Kigali as well, to see the differences and similarities and to get a better picture of the information gathered. Via an interviewee I got in contact with a Dutch-Canadian couple who started a clinic for pre-natal care in Nyabisindu, an informal settlement in Kigali. I went with them to see how a day would be at the clinic and to see how an informal settlement in Kigali looked like. One man from the clinic took me for a walk through the area. My second and third fieldtrip were with Pivot Works. One day I went to see how a pit latrine was emptied in one of the informal settlements, and the other day I went with them to the dumping site of Nduba to see how the treatment goes and where the faecal sludge is disposed. A more detailed description of these two trips is given in [chapter 6](#).

It was possible to take pictures during all the trips in Kampala and Kigali. Besides these ‘official’ trips, I also took pictures and looked around at toilets, drainage systems or small treatment plants during the rest of my time in Uganda and Rwanda. The observations are used to help to understand the physical part of the sanitation provision and function as an illustration of the text; they give this research colour.

### 3.2.3 Interviews

The third type of source are interviews. The interviews are primary sources and function as the core of this research. The people I interviewed are all actors involved in the provisioning of sanitation in Kampala or Kigali. This includes ministries, local governments, water and sanitation companies, universities, international NGOs, local NGOs, networks, development agencies, a community leader, a research centre and a consultant (see [appendix 1](#) for a complete list of the interviewees). The interviews could only be conducted during the week due to office hours and most of the people were out of office during the Christmas break. One of the interviews is done through Skype, one via email, one face-to-face in the Netherlands, and the rest is done face-to-face in Kampala and Kigali. Most of the interviewees came from Uganda or Rwanda and some from abroad, the majority of the interviews are conducted in English and a few in Dutch. For Kampala I conducted 23 interviews and for Kigali 11. This difference can be explained due to the small amount of actors involved in sanitation in Kigali compared to Kampala, where more interviews were possible, if there was no time limit.

The selection of interviewees is based on snowball sampling. I emailed as many people as possible and from some I got a list of actors active in the water and sanitation sector. I emailed them and either arranged an interview or got another contact. Also after the interviews the interviewee would suggest another actor or I would ask for it. This way showed to be very effective, although it was a bit easier in Kampala to arrange interviews than in Kigali, due to the amount of actors active in the sector. I tried to have a sample that represents the different actors involved in sanitation in both cities; governmental actors, local and international non-governmental actors, the private sector, universities and development agencies.

The interviews done were based on an interview guide made before going to Kampala and Kigali. The interview guide includes both questions about the physical and social aspects of the current sanitation situation in the two cities. The first questions focused on the physical part, while further on in the interview the social part was discussed (see [appendix 2](#) for the interview guide). Although the questions are tight and set, I conducted semi-structured interviews to give the interviewee space to tell his or her story and to make it possible to go in-depth on certain topics. Therefore, I did not ask the question as they were formulated in the guide, but I chose to use broader questions which would cover several questions of the interview guide. The interview guide was, therefore, more of help for myself to see whether all aspects I needed, in order to answer my research questions, were covered during the interview.

For the social part the policy arrangement approach was used as the basis for the questions (see [chapter 2](#)). The four dimensions of the policy arrangement approach make it possible to analyse the policy arrangement from four different perspectives. These “analytical perspectives ... will highlight different aspects of the arrangement” and therefore have a different methodological approach (Liefferink, 2006, p. 46). Since the focus of this research is the role of the government in urban sanitation provision, the analysis will be from an actors and coalitions perspective, that is used for “research questions focusing on the positions and roles of actors in a given policy arrangement” (ibid, p. 50). Due to this, only the three linkages with the actors and coalition dimension (see [figure 4](#)) – relational power, discourse coalitions, and interaction rules – are used for the design of the interview guide.

Back in the Netherlands, all interviews have been transcribed and sorted along the lines of the topics of the sanitation chain and the policy arrangement approach. Together with the information from the literature and the observations I have tried to make a clear and concise text to sketch a picture of the current sanitation situation in Kampala and Kigali. The result can be read in [chapter 4](#) and [6](#). In the text, the reference to the interviews are between brackets, in [appendix 1](#) the number(s) in the brackets is connected to the interview and information is given about the interviewee.

### 3.3 Sub Question 2

*What kind of governance is practiced and what is the role of the government in sanitation provision in Kampala and Kigali?*

The data collected to define the current situation of sanitation in Kampala and Kigali and thus answering the first sub question, is used as the basis for the answer of the second sub question. The theoretical framework is used as a guide for the analysis about the way of governance and the role of the government in it. See [appendix 3](#) for a schematic depiction of the theoretical framework that is used for the analysis.

The social information of sub question 1 is used for defining the three dimensions of the governance modes; actors and their coalitions, resources determining the power and influence of the actors, and the rules of the game. These three dimensions are defined individually for both cities after which they are connected to one of the governance modes; hierarchical, closed co-, open co-, and self governance. As is explained in [chapter 2](#), the fourth dimension of the policy arrangement – policy discourse – is analysed using the four variables of the MMA. The analysis of the organisation and end-user participation variables is also based on the social information of the first



sub question. The two other variables – sanitary flows and spatial-technical – are analysed using the data gathered for the physical part of the first question. The information about the variables of the MMA is analysed along the lines of four-point scales, explained in chapter 2. For both the cities, the current situation of the sanitation system(s) are analysed along these scales and the figure is used to depict the outcome of the analysis. The scores on the different scales together form one of the 16 combinations explained in chapter 2.

The analysis of the governance modes and the sanitation systems together form the analysis of this research, by linking the way of governance and the sanitation systems of Kampala and Kigali to the theoretical framework. After this, special attention is paid to the role of the government in it. In this way sub question 2 is answered.

### 3.4 Sub Question 3

*What are the similarities and differences between the governance and the role of the government in the governance of sanitation provision in Kampala and Kigali?*

The third sub question is a comparison between the analysis of Kampala and Kigali done in order to answer the second sub question. The governance modes, the current sanitation system, and the role of the government in all this in Kampala and Kigali is compared and the context of the two cities is used to try to explain or understand where these differences and similarities come from.

As is explained in the beginning of this chapter, by answering the sub questions, the main research question can be answered; the answer of sub question 3 is used to explain the difference in sub question 1 for Kampala and Kigali and thus an answer to the main question.



# KAMPALA

## Uganda





# 4 Kampala

## 4.1 Uganda

To better understand the situation in which the city dynamics of rapid urbanization, high population growth and high poverty rates are taking place, some background information is given. This helps to sketch a better picture of the sanitation situation in Kampala and more specifically in the informal settlements.

Uganda is a country located along the Equator in the East of Africa, situated north of Lake Victoria, where most of the drinking water comes from and drainage water from the country, including Kampala, flows back to (see [figure 11](#)). Big part of the land is used for agriculture, 71%, and 15% of the country is covered with surface water (Central Intelligence Agency [CIA], n.d.). Uganda has a steady temperature year round of about 25 degrees, and the annual rainfall is 1293 mm falling during two rain seasons from April to May and August to November (Niwagaba, 2016).

Uganda has almost the same size as the United Kingdom but halve of its population, 38 million people (Van Crevel, 2015). A remarkable fact is that 48% of its total population is younger than 14 years old and 21% is between the 15 and 24 years of age (CIA, n.d.). With such a big proportion of the population being fertile at the moment or in the near future, a fertility rate of 6.2 children per woman, and 52% of total population being female, the population is growing every year with more than 3% (and probably even more in the future), which ranks Uganda fifth in the world (Government of Uganda [GoU], 2015). Uganda has a population density of 195 people per square kilometre, that is almost five times the Sub-Saharan average (42 people per square kilometre) (WB, n.d.).

16% of the total population (6.4 million in 2014) lives in urban areas (Ministry of Finance, Planning and Economic Development [MoF], 2015), which, compared to the Sub-Saharan average of 38%, is quite low. However, urban areas are growing every year with more than 5% (WB, n.d.). Kampala is inhabited by 2 million people, but during the day around 4.5 million people are accommodated in the city (GoU, KCCA, BMGF, & DfID, 2014). The population growth and the rapid urbanization, both cause an increase of the inhabitants of Kampala (Matyama, 2012; Van Crevel, 2015). Although income poverty declined in urban areas from 29% to 9% between 1992/1993 and 2012/2013 (MoF, 2015), Uganda belongs, with a GDP per capita<sup>5</sup> of \$1,825, to the 30 poorest countries in the world (WB, n.d.). The UN has labelled the country a Least Developed Country (LDC), which means that Uganda “exhibits the lowest indicators of socioeconomic development, including poverty,

**Figure 11: Map of Uganda**



Source: Africa.com, retrieved May 2017 from <https://www.africa.com/countries/uganda/map/>.

<sup>5</sup> PPP, current international dollar.



economic vulnerability and human weakness resources” (Van Crevel, 2015, p. 31). According to interviewee 2<sup>6</sup>, “Kampala is one big slum”, around 60% of the population of Kampala lives in informal settlements covering just 11% of the city<sup>7</sup>. The population density in informal settlements is therefore very high compared to the rest of the city. The high population density leads to high fill up rates of the latrines and low amount of space to dig new pits (Matyama, 2012; GoU, 2015).

Moreover, the majority of the informal settlements (estimated at 95% in Kampala) is located at the lower areas of the city, where the water table is high (Niwagaba, 2016; Sander, 2015). This makes it difficult to construct adequate sanitation, for instance, pits can only be 1.5 meter deep (interview 5 & 18). This combined with the lack of planning makes the provision of water and sanitation services in these areas difficult (Niwagaba, 2016; several interviews<sup>8</sup>). Meanwhile, in the valleys of the city the “natural streams or drainage channels and wetlands” are located, and due to the hilly geography of Kampala everything from the city flows down to the informal settlements (Niwagaba, 2016, p. 14). When there is heavy rain, which happens quite a bit during rainy season, these areas are the first to be flooded. As a result, the water level will rise and the content of the latrines will rise as well spreading the excreta and polluting the surroundings and water sources, due to which infectious diseases spread easier (Sander, 2015; GoU, 2015). It is therefore in the informal settlements that people are most vulnerable for diseases and benefit the most from improved sanitation facilities. The wealthier people and the wealthy organizations, like universities, international organizations, banks, commercial centres, and government buildings, are located higher on the hills and are thus less vulnerable to these diseases (Sander, 2015; Höhne, 2011).

In short, the urban areas are growing each year with 5%, the population of Uganda is increasing with 3% yearly, 9% of the urban population is labelled as living in poverty, and 60% of the population of Kampala lives in informal settlements. This rapid urbanization, high population growth and poverty rate make the informal settlements in the cities grow and put pressure on the provision of sanitation. In order to handle this pressure changes are needed to improve the situation for all people. In the next part the sanitation situation in Kampala will be described.



Kampala<sup>9</sup>



Informal settlement in Kawempe division

<sup>6</sup> Interview number (see [appendix 1](#) for interview list).

<sup>7</sup> Different sources give different numbers of people living in informal settlements: Van Crevel, 2015; Niwagaba, 2016; GoU et al., 2014; Schoebitz et al., 2016; Sander, 2015.

<sup>8</sup> Interviews 1, 6, 13, 18, and 19.

<sup>9</sup> All pictures are taken during my stay in Kampala and Kigali with my own camera (December 2016-February 2017).



## 4.2 Sanitation Situation in Kampala

In this part the situation of the sanitation in Kampala will be addressed along the lines of the sanitation chain presented by the IRC (see [chapter 3](#)).

### 4.2.1 Capture and Containment of Faecal Sludge

The first two steps of the sanitation chain are the capture and containment of the faecal sludge. There are two kinds of sanitation facilities; on-site and off-site sanitation. In this part the situation of on-site and off-site sanitation in Kampala will be described.

Kampala covers 178 square kilometres of which 64% is labelled as “residential area” (Niwagaba, 2016, p. 14). Based on a household survey done by the GoU and the KCCA in cooperation with BMGF and DfID (2014), there are almost 315 thousand households (2 million people) living in the residential areas in Kampala. 93% of Kampala’s inhabitants use on-site sanitation facilities (GoU et al., 2014). On-site sanitation can be pit latrines or septic tanks; 64% of the households use unlined pits, 21% lined pits and 14% septic tanks (ibid). A lined pit latrine means that the pit has impermeable or semi-permeable walls, but an open bottom (Schoebitz, Niwagaba, & Strande, 2016). Unlined pits do not have any constructed walls; it is just a hole in the ground. Pits are more common in low-income areas and informal settlements and are the so-called “dry toilets” because no water is used to flush after using (Niwagaba, 2016, p. 15). Septic tanks are mainly implemented in high and medium income housing areas, that are not connected to the sewage system, where the density of the population is low (Beller Consult et al., 2004).

Not every household has its own sanitation facility. In 2013, 68% of the households living in informal settlements shared their pit latrine with other households, 20% used private sanitation facilities used by only one household, 11% went to public toilets and less than 1% defecated in the open or used flying toilets, like buckets or bags (Sander, 2015). Furthermore, as interviewee 3 states,

*“there are a lot of people that have their sanitation facilities outside the house at 200 meters walking distance. At night they cannot access the latrines because of security reasons, so they use buckets, basins or some containers. Unfortunately, most of them, when they wake up in the morning, throw this in the drainage channels and not in the pit latrines further away”.*



Pit latrines in informal settlement in Kawempe division



Spring well in Kawempe division

In 2014/15, 78 spring wells were tested in Kampala and in all faecal matter was found. The water is thus not good for consumption (interview 9).

Besides household sanitation, research done by MoWE and GIZ in 2012, shows that there were 533 “public and community-based toilets in informal settlements” (as cited in Sander, 2015, p. 9), of which the KCCA supervises 14 public toilets (Schoebitz et al., 2016). The difference between public toilets and community toilets is that public ones can be used by everyone who pays for the facility when using, while community toilets can be locked by the community and are therefore only available for a smaller group of people (Sander, 2015).

*“The density of the population is so high that you cannot construct a pit for every tenant. That is why people share latrines, you find that if not more than four families share a latrine, not more than 20 people use the toilet. We find that this amount of people can share and use a pit and it can still be usable and clean” (interview 3).*

Nonetheless, community toilets are shared by 8 to 40 households, with an average household of 6 people, and some other users that might break in, meaning that 48 to 240 people use one toilet (Sander, 2015). Meanwhile, 11% of the public and community toilets are not in use anymore due to “project mismanagement, land ownership, high costs of emptying and problems with flooding” (ibid, p. 9). Also in schools, there are too many pupils for the stands provided. Ideally it should be 35 pupils per stand, but in reality it is one stand for 100 pupils (interview 2, 5, & 20). Of all the on-site sanitation in Kampala, only halve of it is “clean enough to be properly used”, and halve of the constructed latrines is “abandoned after five years from construction, because they are either full or have broken down” (Niwigaba, 2016, p. 16).

Besides on-site sanitation there is also off-site sanitation. Around 7% of the population is connected to the sewage system and therefore uses off-site sanitation (Schoebitz et al., 2016). Off-site sanitation in this case means that water is used to flush the defecation down into the sewage system and is mainly used by people with high income, and in “industrial, institutional and commercial areas” (see the red lines in [figure 12](#)) (Niwigaba, 2016, p. 16). Although just 7% of the population is currently connected to the sewage system, there are plans to have a sewage coverage of 30% by 2033 (interview 3 & 6). At the moment halve of the implementation time of this plan has passed and still no increase in sewage coverage is seen, therefore it is very unlikely that this plan will succeed (interview 3). This is because there is no money for such a capital intensive plan and it is difficult considering the structure of the city with the informal settlements, hills and valleys (interview 3, 8, & 21), “sewage for the whole city is really a dream” (interview 6). However, actors still think that it is kind of necessary for a capital city to have a sewage system (interview 8 & 10). According to interviewee 3, “sewage is the best you could go for, there could be other versions of sewage, but it is the best you can do in a dense environment”.

**Figure 12: Sewage system in Kampala**



Flush toilet in Central division

Source: GoU et al., 2014, p. 3.

- The red lines are the sewage system in Kampala.

Meanwhile, some actors disagree to focus on the centralized sanitation solution, and instead argue for investments in on-site sanitation (interview 6 & 17). Appropriate technologies, for example, that fit the households that need access is necessary in order to improve the sanitation situation (interview 17). In this case it might be possible to create 30% sewage coverage while the rest relies on adequate on-site sanitation (interviews 6). Besides, “the KCCA wants to zone the city to faecal sludge collection zones [like the solid waste], and they have to be fair; each zone has to have good and profitable areas, and these difficult ones. Then the service level agreements will oblige the service providers to provide sanitation in these zones” (interview 8).

As is described above, Kampala is mainly dependent on on-site sanitation. Except from the rich, the business centre, the industrial, and institutional areas, everyone relies on pit latrines or septic tanks. In the areas where sanitation is most critical, like the informal settlements, only pit latrines are used and in many cases shared among several households. Moreover, many of these pits are not used anymore due to a lack of maintenance or other issues. There is, thus, too little adequate sanitation to facilitate everyone in the city with improved sanitation. In order to improve the situation, centralized plans, focused on the sewage system and centralized treatment plants, are discussed as well as somewhat more decentralized options.

## 4.2.2 Emptying and Transportation of Faecal Sludge

The next steps in the sanitation chain are emptying and transportation of the faecal sludge. There is a difference between the way on-site and off-site sanitation are emptied and transported. The faecal sludge in the sewage system does not have to be emptied and transported, since it flows on its own to the treatment plants. Pit latrines and septic tanks, however, have to be emptied when they are full.

Emptying is mainly done by the private sector, either manually, semi-manually or mechanically (GoU et al., 2014). Manual emptying of pits is used at places where the semi-manual or mechanical emptiers cannot come (ibid). The faecal sludge is dug out of the pit and stored in another hole in the area or dumped further away into storm water channels (Schoebitz et al., 2016). This way of emptying the pit causes health and environmental

problems (Sander, 2015). Since the manual emptying is done in the informal sector, there is little known about this practice (GoU et al., 2014). Another way of manually emptying pits is by making a hole at the raised part of the sanitation facility when it is raining (several interviews<sup>10</sup>). By doing this the rainwater causes the faecal sludge to drain out of the latrine into the storm water, flowing away from the containment (Schoebitz et al., 2016). “Sanitation is [thus] complementary with environment, the two go together. At the moment, sanitation does not take into account the environment although it is effecting it” (interview 2).

The semi-manual emptiers are the so-called Gulpers, which are operating since 2013 (GoU et al., 2014). In 2014 there were 15 private entrepreneurs emptying sanitation facilities with a Gulper (Schoebitz et al., 2016). A household can call for the service, after which a field examination is done about the status of the pit and its location, and then an appointment will be made for the emptying (Sander, 2015). The sludge is collected with a “manual pumping system” that is safer to work with than the manual emptying (ibid, p. 9). The sludge is pumped into barrels of 200 litres and transported to the treatment plant at Lubigi by a pick-up truck, the truck volume is 1.2 m<sup>3</sup> (GoU et al., 2014). To empty one pit, the Gulper team needs two to eight hours (Sander, 2015). It is a low-cost and low-tech emptying method, designed to empty the top 1 to 1.5 meter of the pit (GoU et al., 2014; interview 25). Water for People (WFP), an international NGO with a local branch in Kampala, has promoted this way of emptying and is still doing research into technological innovations that could make the device better (interview 4). They are representing 3% of the “available emptying capacity in the city” and are mainly used in areas where it is too difficult for the mechanical emptiers to come, due to the narrow streets and the location of the facility (GoU et al., 2014, p. 12; interview 4 & 11). WFP from Kigali, argues that the Gulper is not safe since people are exposed to the sludge and contamination of the faecal matter, therefore, the Gulper is not accepted by the Rwanda authorities (interview 25). Also interviewee 11 agrees that the Gulper is not environmentally sound; “between the different steps of the process and during the transport leakages are emanate”.

The mechanical emptiers are the Cesspool trucks, mainly used to empty lined pits or septic tanks (GoU et al., 2014). These emptiers can empty a pit of 3 to 5 meters deep with a vacuum pump, it is a safer and faster option than the Gulper, however, it cannot access all the places where pits have to be emptied, due to the small or non-existing roads (ibid). Besides, mechanical emptying cannot be used for unlined pits because of the possibility that the pit collapses (Schoebitz et al., 2016). According to Schoebitz et al. (2016), the number of cesspool trucks that



Gulper



The place where the cesspool trucks are waiting

<sup>10</sup> Interviews 4, 5, 6, 8, 9, 12, 13, 15, and 17.

were operating in 2008 increased from 27 to 45 in 2013, and at the moment, there are 85 of these trucks operating privately or by institutions accounting for 97% of the available emptying capacity. The ownership of the 85 trucks is divided over several actors, for example; the KCCA owns 12 trucks – 6 for maintenance and surveillance of the sewage network and six for faecal sludge collection from the pits at public places, like the markets, school and communities (Schoebitz et al., 2016) –; NWSC owns one; and 72 are owned by the private sector (GoU et al., 2014). A client can call or come to the place where the trucks are waiting during the day and ask for the services, which is provided immediately (Sander, 2015; interview 11 & 18). The cesspool businesses are working “seven days a week from eight in the morning until six in the evening” and help 0 to 4 clients a day (Sander, 2015, p. 28). Emptying one facility takes between two and four hours (ibid). The trucks differ in size between 2 m<sup>3</sup> to 20 m<sup>3</sup> forming together a total capacity of 461 m<sup>3</sup> (GoU et al., 2014). Since the average trips each truck makes per day is 1.4, 645 m<sup>3</sup> faecal sludge can be collected each day mechanically (ibid).

WFP has done research about the amount of faecal sludge that has to be emptied from on-site sanitation in Kampala. They based their amount on “an average pit size of 4 m<sup>3</sup> and an emptying frequency of once in five years” (GoU et al., 2014, p. 10). This would mean that the demand for faecal sludge emptying from on-site facilities in Kampala is 937 m<sup>3</sup> a day (ibid). This does not yet cover the faecal sludge coming from the sewage systems. Since the Gulper just represents 3% of the available emptying capacity in the city and the cesspool trucks can empty 645 m<sup>3</sup> a day, there is still a big gap between the demand and supply of emptying services.

For the different emptying techniques, different prices are asked depending on the amount of time the service providers spent to empty a pit, the accessibility, and the size of the pit. Due to the small, bad or non-existing roads the accessibility to empty latrines is low (several interviews<sup>11</sup>). In Kampala there is around 1200 km of roads, but only 20% is in adequate condition (Van Crevel, 2015). The condition of the roads, the traffic jam and the distance from the latrines to the treatment plants for faecal sludge make the transportation of faecal sludge not possible or expensive (several interviews<sup>12</sup>). Also the dumping of solid waste into the latrines increases the price for the emptying services due to the high amount of time spent to empty one latrine (several interviews<sup>13</sup>).

Although the volume of the pits is not known by households using the informal way of emptying, the price for such a service varies between the 9 and 30 USD<sup>14</sup> (Schoebitz et al., 2016). Making use of the Gulper costs around 45 USD per 1 m<sup>3</sup>, while the emptying costs for the cesspool trucks are between 4.5 to 12 USD per 1 m<sup>3</sup> (ibid). The mechanical services from the KCCA are even cheaper; 4 USD per 1 m<sup>3</sup> (ibid). Cesspool trucks are therefore in general the cheapest option, but not possible for all places due to the accessibility or the nature of the pits. Since people with a medium or high income also live generally in places where it is possible for a cesspool truck to access, the costs for emptying sanitation facilities is lower per 1 m<sup>3</sup> for this group than for the low income households. “This is unfair because the poorest people can only get Gulpers services and have to pay much more than the middle class home with a cesspool” (interview 8). The costs of the emptying of the public toilets is covered by community fees or a “pay per use” fee (Schoebitz et al., 2016, p. 13).

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<sup>11</sup> Interviews 2, 9, 13, and 17.

<sup>12</sup> Interviews 2, 4, 8, 9, 11, and 15.

<sup>13</sup> Interviews 1, 3, 4, 6, 8, 11, 13, and 20.

<sup>14</sup> United States Dollar.



To decrease the costs of emptying and transportation of faecal sludge the distance to the treatment plant and the accessibility of the pits have to be improved. In order to do so, a plan has been discussed to implement “Mobile Transfer Tanks” where the manual and semi-manual emptiers can bring the faecal sludge from the inaccessible pits (interview 4). From this transport station trucks will transport the faecal sludge to the treatment plant (interview 3). So instead of all emptiers driving the long distance to the treatment plant, regardless of the volume of the truck, only the trucks that can transport a high volume of faecal sludge have to drive that distance reducing the transportation costs (ibid).

For most of the households the price of emptying would be affordable, however, people are not able to pay this at once or are not willing to pay (GoU et al., 2014). Three factors play a role in the low willingness to pay; awareness, priority and ownership. People are not yet aware of complications of inadequate sanitation, they do not know what their rights and options considering sanitation are (interview 8, 19, & 20) and they lack knowledge and information about the effects of sanitation and hygiene on their health and economic benefits (GoU, 2015). This makes that adequate sanitation is not a priority to most people, leading to a low demand for improved sanitation and a low willingness to pay for the services (GoU, 2015; several interviews<sup>15</sup>). Therefore, “it would be good if there would be more campaigning, like the HIV campaigns” (interview 8).

Meanwhile, in a survey done by GoU et al. (2004), 48% of the respondents did not own the house where they were living in and therefore lack the feeling of ownership and responsibility of the property. This low feeling of ownership of the houses and a lack of security of land tenure leads to the belief that sanitation provision is the responsibility of someone else, for example, the government or the landlord (Niwagaba, 2016; interview 1, 18, & 20). However, the provision of sanitation facilities is also no priority to the landlords and thus the willingness to pay for the construction, maintenance and emptying of sanitation facilities by the landlords is low (Beller Consult et al., 2004; several interviews<sup>16</sup>).

Even people connected to the sewage system fail to pay for the services, “since 75% of the water bill is added”, in other words, “if you consume water that is equal to 100\$ US, you pay 175\$ when you are connected to the sewage system, 75\$ for the management of the sewage” (interview 3). This is not the case when households are using septic tanks. For these reasons, a big part of the population cannot afford to pay for the emptying and construction services, and there are no regulations or support systems provided by the government or other institutions, like banks, to assist the people financially or to help the private sector to lower the prices (Niwagaba, 2016). Thus, low awareness, lack of priority and lack of ownership leads to a low willingness to pay for the sanitation services by the people, leading to little financial investment by the households in sanitation provision.

There are thus several ways to empty and transport faecal sludge, but the capacity is not yet enough to serve the whole city. Depending on the opinion, only cesspool trucks are considered to be safe and most affordable. However, they cannot access and empty all types of toilets and thus these other people depend on less safe and more expensive options, like informal ways of emptying or the Gulper. Besides, the willingness to pay for these services is low due to a lack of awareness, priority and feeling of ownership. So even when the service providers are there, there are too many issues to serve the whole city with safe and affordable emptying and transporting services.

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<sup>15</sup> Interviews 4, 8, 11, 12, 17, 19, and 20.

<sup>16</sup> Interviews 4, 13, 17, and 18.



### 4.2.3 Treatment and Reuse or Disposal of Faecal Sludge

After the emptying and transportation of the faecal sludge, the excreta are brought to treatment plants where it is treated. In Kampala there are five treatment plants for water and sanitation; three decentralized wastewater treatment plants, Naalya, Ntinda and Bugolobi flats; one centralized wastewater treatment plant, Bugolobi; and one wastewater and faecal sludge treatment plant, Lubigi. Naalya, Ntinda and Bugolobi flats are designed to treat 1,200 m<sup>3</sup> wastewater per day (Schoebitz et al., 2016). Bugolobi serves 33,000 m<sup>3</sup> wastewater per day and is redesigned to treat 45,000 m<sup>3</sup> wastewater per day in the future (ibid). Before 2014, Bugolobi also received faecal sludge to be treated partly. After the settling tanks, the liquid effluent of faecal sludge joined the effluent of the wastewater in order to be treated (ibid). However, these settling tanks are removed and all the faecal sludge entering Bugolobi goes directly into the effluent of the wastewater (ibid).

Lubigi is the only treatment plant at the moment that treats faecal sludge and it is operated by NWSC. This treatment plant was opened in 2014 and can treat 5,000 m<sup>3</sup> wastewater and 400 m<sup>3</sup> faecal sludge a day (GoU et



Lubigi treatment plant (for a more detailed depiction see [appendix 5](#))

al., 2014, p. 19). The plant receives faecal sludge from on-site sanitation, municipal sewage, including storm water and greywater (Krenn, 2011; interview 10). However, after three months of operation it received 199 m<sup>3</sup> domestic faecal sludge, 188 m<sup>3</sup> institutional and 4 m<sup>3</sup> commercial every day, which is a total of 391 m<sup>3</sup> per day, and is therefore already operating at maximum capacity (Schoebitz et al., 2016). According to interviewee 8, this is because the treatment plant “was not designed very well, the estimations were not very correct because it has reached its capacity already for faecal sludge after two years of operation”. Due to this there is also faecal sludge discharged at the Bugolobi wastewater treatment plant. Since it is less than 50% of the produced faecal sludge per day (interview 9 & 10) that can be treated and most of the operating treatment plants are old (Matyama, 2012; interview 1 & 12), there are plans for the implementation of two extra treatment plants similar to the Lubigi treatment plant (Schoebitz et al., 2016; interview 3). However, not everyone thinks it is possible to serve the whole city with the centralized treatment plants:

*“[Kampala has] chosen a sewage system, so they are constructing a very fancy expensive wastewater treatment plant with German money, because it is much easier and sexier, but they forgot to bring in money for the pipes to connect the households. So you have a very nice Mercedes Benz, but you do not have a driver’s licence, no driver and no petrol, because there is no money for that. That is why we say that you should not go for this fancy high tech solutions, but you should go for low tech, hybrid solutions” (interview 34).*

After the treatment at the treatment plants the solid parts and the effluent are reused or disposed. When the water is evaporated or drained out of the solid part of the faecal sludge in Lubigi or Bugolobi, it is sold to farmers as a soil conditioner, organic fertilizer, and a fill material (interview 1). Other initiatives are to use the dewatered faecal sludge for the production of briquettes as a fuel for the industries (Schoebitz et al., 2016).

The liquid parts flow into the Lubigi wetland, located next to the treatment plant, after treatment at the plant this is seen as the last phase of the treatment (Schoebitz et al., 2016). The liquid part from the Bugolobi treatment plant drains into the Nakivubo wetland for its final treatment (ibid). There are two other wetlands in Kampala that can be used for the last step of the treatment but they are not yet in use; Kinawataka wetland and Nakulongo wetland. The problem with this disposal is that there are several communities living near these wetlands, exposed to the effluent of the faecal sludge. Since the effluent needs some time to be fully purified, the communities come in contact with not yet fully purified effluent and can become ill because of it.

Thus, the city has some operating treatment plants, serving the whole city, but they have reached their capacity or are too old to keep up with the supplied excreta, not to mention the future supply of faecal sludge. Plans are, therefore, made to construct new treatment plants, but it is not known when these plans will be realised and whether they are the most adequate. After the treatment at the treatment plants the solid parts are reused by farmers or as fuel for the industries. The effluent is disposed in the surrounding wetlands for the last purification, putting the surrounding communities at risk.

In this part a description is given about the current situation of the sanitation facilities in Kampala. The sanitation chain of IRC is used to explain the different steps of the process; the capture, containment, emptying, transport, treatment and reuse or disposal of the faecal sludge. The majority of the city depends on on-site sanitation, which in many cases does not comply with the international standards of improved sanitation facilities. Also the way the faecal sludge is emptied and transported has to be improved to be safe and affordable for all. Besides, a lack of awareness, priority and the feeling of ownership of the sanitation facilities by the people makes the effort put in by households to improve their sanitation low. Meanwhile, the operating treatment plants are not designed to deal with the current and future production of faecal sludge, as well as, the reuse and disposal of it. All steps in the sanitation chain are important in order to provide adequate sanitation and still quite some progress is needed to make sanitation not an issue any more for all people living in Kampala.

## 4.3 Institutional Framework

In this part, the institutional framework will be addressed in order to draw a picture about the policy domain of sanitation in Kampala. The Ugandan institutional framework has three categories relevant for urban sanitation; the constitution, the strategies and the standards that are in place.

### 4.3.1 Constitution of Uganda

The legal framework of Uganda is based on The Constitution of the Republic of Uganda from 1995 in which the “national objectives” and “the overall principles of state policy” are stated (Schoebitz et al., 2016, p.

4). It is also in this document where the “right to a clean and healthy environment” is proclaimed for all Ugandans and that the “important” natural resources shall be protected (GoU, 1995, p. 39).

A few years after the Constitution of Uganda was made, Uganda started to decentralize their legal framework, giving more power from the government departments to the local entities at district level (Van Crevel, 2015). Considering waste management, including sanitation, the Public Health Act (1964, revised in 2000) and the Local Government Act (1997) are important for the role division and responsibility of the local authorities after the decentralization. These acts give the mandate for the management of services to the local entities, and the “legal authority to make specific ordinances and by-laws” (Okot-Okumu & Oosterveer, 2010, p. 56). This means that the local authorities are responsible for the planning and implementation of WASH activities in their communities, that they can define standards for the construction of sanitation facilities, and that they have the legal mandate to enforce these activities (Schoebitz et al., 2016). In Kampala, this mandate is given to the KCCA, who governs the city and district.

### 4.3.2 Strategy

Not only acts are important to understand the policy domain of urban sanitation in Kampala, also strategic plans provide guidelines for the development of sanitation. In 2010 the Ugandan Government launched Vision 2040 to develop Uganda from “a predominantly peasant and low income” country towards “a competitive, upper middle income status” (GoU, 2015, p. 2). Under this Vision there are three 10-year development plans and six five-year National Development Plans (NDP). At the time of writing this research, Uganda completed the first NDP (2010-2015) and has continued with the second NDP (2015-2020). Monitoring, evaluating and reporting is seen as an important aspect of the NDPs (KOIS Development Consultants [KOIS], 2011). The performance and recommendations, that came out of these evaluations and reports are taken into account in the next NDP (KOIS, 2011). Where NDP I wanted to increase the access to improved sanitation to total urban coverage, the objective in NDP II is more focussed on the actors involved (ibid). NDP II states, that both the governmental and non-governmental actors of the water and sanitation sector are responsible for all that has to do with “safe and clean water and hygienic sanitation facilities” in the country (GoU, 2015, p. 2). Governmental entities mentioned in NDP II are the MoWE, the NWSC and the Local Governments, while the non-governmental actors include the private sector, civil society organisations (CSOs), and the development partners (ibid). A more descriptive role division will be given further on in this section.

### 4.3.3 Standards

The government bases the acts and development strategies on the MDGs and SDGs, which form together the guidelines for what the involved actors define as adequate sanitation (Beller Consult et al., 2004). As explained in the introduction, the MDG for water and sanitation was “to halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation”, which meant that 70% of the population should have had access to improved sanitation in 2015 (Matyama, 2012, p. 1). The SDG made this goal more ambitious by aiming for 100% coverage of improved sanitation in 2030.

Although the goals are defined, the numbers of sanitation coverage are somewhat confusing since different sources give different figures of the sanitation situation. According to a report of the MoWE of 2011, the overall

urban sanitation coverage is estimated at 81% (Matyama, 2012), while another report from the MoWE in 2010 states that there was an urban coverage of 77% (KOIS, 2011). However, the JMP and the World Bank report only 29% urban coverage in Uganda (JMP, n.d.; WB, n.d.). Therefore, it is necessary to know what is included and what not when these numbers are determined. JMP, for example, does not include shared facilities at all, while the MoWE does not exclude all shared facilities (Matyama, 2012). “The JMP standards is mostly done at the international level, ... their standards are different from the national standards” (interview 12). “JMP is not the ultimate goal, it is not what people are pushing for” (interview 13), and according to interviewee 9, shared toilets can be included in the coverage rate of urban sanitation as long as the latrines comply with the standards for adequate sanitation. These examples show the various ways of defining what adequate sanitation is, which influence the standards set for sanitation.

At the moment of writing this research, the KCCA together with GIZ is working on the minimum standards for adequate sanitation in Kampala (interview 8). This includes the technical details for the construction of any sanitation facility (see [appendix 4](#) for an example of the standards). The guidelines take into account several aspects, like; the environment (ibid); hygiene, such as hand washing (interview 7); the safe management of the liquid and solid waste (interview 15); accessibility to all groups reducing the inequalities between the groups and people (interview 4 & 7); and appropriate and affordable sanitation technologies and services to make it possible for all people to have adequate sanitation (interview 4 & 15). These standards are not yet in place, resulting in a lack of coherence about what adequate sanitation is. This makes enforcement difficult and it is therefore also not clear what the coverage rate of adequate sanitation in Kampala is.

Due to a lack of clear standards, the coverage of urban sanitation is difficult to define. This makes it also difficult for households, institutions and other actors involved who have to construct the toilets, to comply with the standards. At the moment, however, the KCCA is working on the minimum standards for sanitation facilities. When these will be in place, it is clear to what people have to adapt their facilities and it is easier to enforce in order to reach the goal of 100% coverage of adequate sanitation.

In this part the institutional framework, including the constitution, strategies and standards for the provision of adequate sanitation in Kampala is briefly explained. The constitution, several acts and strategies function as guidelines for the development of the city providing adequate sanitation. Although the goals are set out very clear, the lacking minimum standards for sanitation facilities make it difficult to construct and maintain adequate sanitation and to enforce it. In the next part the responsibilities, roles and tasks of the involved actors will be addressed.

## 4.4 Actors

In the last part, a short description of the institutional framework, the strategies and standards for urban sanitation in Kampala is given. In this part the actors involved will be briefly addressed including their tasks and responsibilities concerning urban sanitation provision in Kampala. In Kampala there are governmental and non-governmental actors involved.

### 4.4.1 Governmental Actors

The governmental actors are the actors at national level as well as at local level. At national level, Uganda consist of four regions, subdivided into districts. The districts are formed by “counties and municipalities”, every county is “represented in the national parliament in Kampala by an elected member” (Schoebitz et al., 2016, p. 4). Counties consist of sub-counties, which are made up of “a number of parishes”, these again are formed by villages (ibid).

Kampala is a district including “5 divisions (sub-counties and counties)”; Central, Makindye, Kawempe, Nakawa and Rubaga (see [figure 13](#)) (Sander, 2015, p. 8). Each division has a mayor (interview 5). The divisions are made up by “99 parishes” combining 2.959 villages (Niwigaba, 2016, p. 14). Kampala is the only district in Uganda that is completely urbanized (Schoebitz et al., 2016).

**Figure 13: The five divisions of Kampala**



Source: Schoebitz et al., 2016, p. 2.

### National Governmental Actors

At national level there are several ministries active in urban sanitation in Uganda. The Ministry of Water and Environment (MoWE) is the leading ministry, they coordinate the water and sanitation sector, make the policies, set the standards and monitor and evaluate the programs (GoU, 2015). The Ministry of Health (MoH) is mainly involved with the public health part of sanitation and sanitation at household level (MoH, 2014). They supervise the districts and monitor whether the given policies and guidelines designed by the MoWE are followed by the households and health institutions. The Ministry of Education and Sports (MoES) is engaged with sanitation at schools and educate the children in primary schools about public health and hygiene (UWASNET, 2016).

Connected to the MoWE is the National Environmental Management Authority (NEMA). They are semi-autonomous and “coordinate, monitor, regulate and supervise environmental management since 1995” (Van Crevel, 2015, p. 65). They are thus mainly concerned with environmental issues, for which they make the standards and regulations used by the MoWE (Okot-Okumu & Oosterveer, 2010). NEMA depends on the mandate of the KCCA in Kampala and thus does not influence the political agenda directly (Van Crevel, 2015).

Under the MoWE falls the National Water and Sewerage Corporation (NWSC) (interview 3), which is a parastatal company founded in the late 1980s (Oosterveer & Spaargaren, 2010). They are responsible for the provision of water and to operate, maintain and expend the sewage services (several interviews<sup>17</sup>). In Kampala the NWSC focusses on off-site sanitation and the treatment of both off-site and on-site faecal sludge and water treatment (several interviews<sup>18</sup>). For example, in Kampala NWSC has to make sure that anyone close to the sewage system who can be connected is connected (interview 2). NWSC and the KCCA are working closely

<sup>17</sup> Interviews 1, 2, 3, 10, 12, and 15.

<sup>18</sup> Interviews 1, 3, 6, 9, 10, 12, 15, 18, 19, 20, and 21.

together and they are trying to harmonize their work to create more engagement (interview 3, 8, & 19). They also work together with development agencies and local consultants to sensitize the people (interview 3). NWSC participates in programs together with other actors, like the MoWE and the KCCA (interview 6). Supervision of NWSC is done by NEMA (interview 1).

The national government is, thus, mainly involved in making policies and standards concerning environmental issues like sanitation. Besides they monitor and evaluate these policies, and own a company responsible for the infrastructure of drinking water and the sewage system in the city of Kampala. The MoWE is the main actor concerned with water and sanitation at national level.

## Local Governmental Actor: KCCA

At local level there are also governmental bodies operating. These local governmental actors are coordinated by national governmental actors. For example, districts, town councils, cities and municipalities are supervised by the Ministry of Local Governments (MoLG) (interview 19). In Kampala, the Kampala City Council Authority (KCCA) replaced in 2011 the Kampala City Council (KCC) under the KCCA Act (2010) developed by the Ugandan Parliament (Schoebitz et al., 2016). With this new act in place more responsibilities were given to the division urban councils, including public health, water and sanitation (GoU, 2011).

Concerning WASH activities, the KCCA is especially responsible for the infrastructure of the on-site sanitation, so not the sewage system, but the pit latrines and the septic tanks (interview 9 & 18). They construct sanitation facilities at public places, like markets, low income areas, informal settlements, and in primary schools (Schoebitz et al., 2016). Currently, the KCCA supports and helps to construct sanitation facilities in 79 public primary schools (interview 1 & 18) and is much involved in solid waste collection and storm water (interview 6). As mentioned earlier, they also own some cesspool trucks providing emptying services to latrines at public places and schools.

Besides the construction of sanitation facilities, three main tasks of the KCCA stood out during the interviews with several actors; enforcing the regulations; providing an enabling environment for the actors involved; and coordinating and streamlining these actors. Through the KCCA Act the KCCA is fully mandated to enforce the regulations set by the ministries (interview 18). Enforcement is important, because when people are not complying with the rules set for sanitation, they will endanger their surrounding and thus public health which the government has to protect (interview 13). Although the regulations exist “the punishments are not very clear” (interview 2) or “a little bit weak”; “make it painful for someone who refuses to dig a latrine” (interview 17). The KCCA is trying to be “a bit more aggressive” (interview 19).



Enforcement in Kampala

Furthermore, if the environment in which this enforcement takes place does not make it possible for the actors to provide sanitation facilities, it is going to be difficult to provide the population with the sanitation that is necessary. Therefore, the KCCA tries to provide an enabling environment for the actors participating and for new actors to participate (interview 17 & 21). The KCCA, thus, guides, informs and prepares the private sector and



the NGOs to make them familiar with the current and new regulations and what their role could be in providing sanitation facilities (interview 8, 9, & 18).

According to the interviewed, the KCCA also has a coordinating role. Shortly after the KCCA came in place they created together with GIZ the Kampala Water and Sanitation Forum (2012) (see for more information [section 4.5](#)). The KCCA coordinates this forum, connecting the actors (interview 9) and dividing the roles, tasks and responsibilities according to the strengths of the actors (interview 17). Through this forum, the KCCA is able to oversee and supervise everything that is going on with sanitation in Kampala, identifying the gaps and making sure that things are not done twice (interview 1, 9, & 18). Moreover, the KCCA has assigned “sanitation coordinators in each division” in order to make it easier for the people to contact someone about their sanitation issue (interview 8). This coordinator helps the people to get the right information or services to solve their problem.

The KCCA is thus responsible for the construction of on-site sanitation, the enforcement of the regulations, the provision of an enabling environment for the actors involved, and the coordination and streamlining of the process.

## 4.4.2 Non-Governmental Actors

Besides the governmental actors, private operators, the civil society and households have a responsibility in the provision of sanitation facilities as well.

### The Private Sector

Sanitation service delivery activities shifted under the Strategic Framework Reform (1997) from the public to the private sector. This and a lack of faecal sludge collection and transportation, created an environment for private entrepreneurs to start a business (Schoebitz et al., 2016). NEMA licenses the private entrepreneurs dealing with waste, including solid waste and faecal sludge (ibid). The enforcement of licensing has not been practised over the last years (GoU et al., 2014). However, KCCA is changing this;

*“In Uganda they have to have licenses, it is a rule since decades, but it was not enforced. So now [the KCCA] wants to change that and the private sector has to understand. Of course they are reluctant now, because they say ‘we have always done our business that way, so why do you want to change it now?’” (interview 8).*

Most of these private businesses are gathered together in the Private Cesspool Emptiers’ Association (PCEA) registered since 1999 or the Kampala Private Emptiers’ Association (KPEA) registered in 2015 (Schoebitz et al., 2016). The PCEA monitors, controls, regulates and guides the emptying operations, and is supported and consulted by the World Bank (interview 11). This private entity as well operates in partnerships with NGOs and the KCCA (interview 19 & 11).

The private sector, therefore, is at the moment mainly involved in the emptying and transportation of the faecal sludge. However, there is still a gap between what is done and what has to be done in order to provide all citizens with adequate sanitation. There is thus still quite some space for private entrepreneurs to start a business and improve the current situation.

## The Civil Society

Besides the governmental actors there are also civil society organisations that are involved in sanitation provision in Kampala. According to the interviewed, there are many different responsibilities of these NGOs. To start with, the NGOs are supporting, complementing and advising the government. They complement the government by filling the gap between what the government is doing and what should be done to reach the goals defined in the regulations and by the SDGs (several interviews<sup>19</sup>). They do not replace the government but support them where needed by implementing the government plans and regulations alongside the government (several interviews<sup>20</sup>). Moreover, the NGOs advise the government since they identify the problems at grass root level (interview 5 & 7) and review and influence policies concerning the sector (interview 12, 21, & 23). By doing so they represent the people in the community at governmental level (interview 7).

Next to these links with the government, the majority of the NGOs is involved in monitoring and advocacy activities (Tukahirwa et al., 2010). Monitoring is done at two levels, on the one hand, international NGOs monitor the local NGOs and their activities (ibid). On the other hand, the local NGOs supervise and monitor the implementation of their own activities through teams stationed at local level (Beller Consult et al., 2004).

Besides, the NGOs are active in the construction of latrines and the sensitization and mobilization of communities. The construction of sanitation facilities, for example, is done at schools due to low budget, at public places or as a demonstration of adequate sanitation (several interviews<sup>21</sup>). Sensitization and mobilization of communities is done through training.

*“Education and sensitization will help to make people aware of the issues. Someone going through the education system does not like the slum conditions; they are looking for a better place to live; they are better empowered to earn better; they are able to have good housing. So formal education and awareness are important” (interview 6).*

International NGOs train the local NGOs in order to create capacity building (Tukahirwa et al., 2010). The people of the communities get training in WASH by the NGOs (interview 3), they teach them their rights, roles and responsibilities in creating a cleaner and healthier environment (interview 20). Due to this, a platform for participation and engagement of the communities is created (ibid). A big part of this sensitization is done through the education of children (interview 13); “we use children as agents of change”, because “what they learn in school is what they bring back in their home” (interview 7). The NGOs protect the marginalized groups and come up for their rights by providing alternative solutions to the sanitation problem (interview 21).

All the organisations dwell, thus, on different elements of sanitation provision, some are more active on the behavioural and mentality side of adequate sanitation while others are more into the construction of the infrastructure of sanitation (interview 7). The tasks of the civil society differ, thus, between; supporting, complementing and advising the government; monitoring, and advocacy activities; constructing latrines; and the sensitization and mobilization of communities.

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<sup>19</sup> Interviews 2, 16, 17, and 21.

<sup>20</sup> Interviews 7, 13, 15, 17, and 21.

<sup>21</sup> Interviews 3, 17, 19, 20, and 23.

## Households

Besides the governmental actors, the private sector and the civil society, the households are responsible for the construction and maintenance of the sanitation as well. They have to make sure that there is adequate sanitation that meets the standards (several interviews<sup>22</sup>). Because, sanitation might be “a private decision, it has to meet a certain standard, so that the public is not affected by it” (interview 18).

*“It is easiest to be responsible for the protection of your own health, but you also have to protect public health. For example, flies do not have boundaries, they go to neighbours and if you have a soak pit, your water will run into the road and your neighbours will suffer from that. You are not only endangering your own health, but public health as well” (interview 13).*

It is thus not only important for the individual to improve the sanitation facilities but for the public health as well.

The residents mainly construct private and shared toilets, this could be done by the “owner-occupiers, by landlords for their tenants, or by squatters and tenants who have given up waiting for landlords to provide adequate facilities”, sometimes NGOs or local governments help these people out (Beller Consult et al., 2004, p. 4-12). The maintenance of the latrines is also the responsibility of the users and owners; the latrines should be cleaned and maintained by the households (several interviews<sup>23</sup>). When the toilet is full, the households have to make sure the latrines are emptied and they have to pay for the emptying and transportation services (several interviews<sup>24</sup>). Participation in programs offered by the government or NGOs is the responsibility of the household (interview 5 & 20), since they are the receivers of the information and the end of the cycle of sanitation promotion (interview 15).

In order to make it clearer what exactly is expected from the households the KCCA, GIZ and CIDI tried to come with clear messages;

*“so that in the future only these messages would be disseminated. So, no matter [what actor] is doing it, it is always the same message and only a few, so that you do not confuse people. What we try is to come from the behavioural side, what are the main behaviours we want to change or target and then always give an explanation. So not only ‘you should not throw solid waste in the latrine and wash your hands’ but also why. Including a more financial perspective as well; that it can save costs because you can avoid diseases and thus costs for doctors” (interview 8).*

Although households are on the receiving end of the sanitation cycle, they have responsibilities concerning the construction, maintenance and emptying services of sanitation. They are responsible for having a latrine that complies with the implied standards and they have to pay for the services in order to provide a clean and healthy environment to live in by themselves and for the whole community.

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<sup>22</sup> Interviews 1, 2, 3, 4, 6, 9, 12, 17, 18, 21, and 23.

<sup>23</sup> Interviews 2, 3, 4, 6, 9, 12, and 18.

<sup>24</sup> Interviews 1, 3, 4, 9, and 21.

There are thus several actors involved who all have different responsibilities and tasks in the provision of sanitation facilities. The national government is mainly involved with the making, monitoring and evaluating of policies and standards. Besides, they own the company that is responsible for the provision of the off-site sanitation infrastructure. The local government, KCCA, is active in the construction of on-site sanitation and the enforcement of the regulations set. Besides, they create an enabling environment and coordinate the actors involved in the process. They are supported by some international development entities, like GIZ, in order to provide the necessary sanitation.

The non-governmental actors are also active in the provision of sanitation. The private sector is mainly involved in the emptying and transportation of the faecal sludge. The civil society supports, complements and advises the government, they monitor and advocate, they construct on-site sanitation, and they sensitize and mobilize the communities. The households have to make sure that they have adequate sanitation facilities, they are responsible for the maintenance of the facilities, and they have to pay for the services to keep them adequate.

Some of the tasks are strictly divided among the actors, like policy making, however, other tasks are executed by several actors. The construction of latrines, for example, is done by the KCCA, as well as by the civil society and the households. To avoid overlap cooperation between the actors is necessary.

## 4.5 Cooperation

Cooperation is organized in several ways in Kampala; there are forums with working groups where actors engage with each other, partnerships between actors, and networks function as a collaboration as well.

### Forum

One way all the actors engage with each other is through the Kampala Water and Sanitation Forum (KWSF) (several interviews<sup>25</sup>). The forum is initiated by the KCCA and GIZ. Ministries, other governmental institutions, private entities, NGOs and development partners, all attend the meetings (interview 1 & 21). Due to this, the activities and actors are streamlined and coordinated by the KCCA (several interviews<sup>26</sup>). The forum exists of four working groups in which the work is done; Hygiene, Public Health Education and Promotion; Appropriate Technologies Standards and Business Development; Knowledge Management and Learning; and Governance, Legal and Policy Advocacy (KCCA, n.d.; several interviews<sup>27</sup>). The third working group is chaired by NWSC and the others are chaired by NGOs. The KCCA is represented in all the working groups (interview 9). This forum forms a link between all the actors involved in sanitation in Kampala (interview 7). Because;

*“What an institution does contributes to what the other institutions would like to do. There is always synergy of one institution doing this, leading to something else, which another institution can do” (interview 6).*

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<sup>25</sup> Interviews 1, 7, 10, 18, and 19.

<sup>26</sup> Interviews 1, 8, 16, 17, 18, and 20.

<sup>27</sup> Interviews 1, 7, 8, 10, and 18.

Besides streamlining and coordination, the forum is meant to share information and experiences and to consult each other in order to improve sanitation (interview 9). For example, as 18 addresses, “at the moment we have a draft on the kind of sanitation facilities that are adequate. We put together all the ideas of all the actors to come to what we consider the minimum for the sanitation facilities. It is still being peer reviewed” (interview 18). Everyone can participate as long as you join the meetings, so the KCCA can prevent overlap in activities and areas (interview 3 & 5). Due to this, cooperation has improved over the past years (interview 8). Besides, the KWSF, there are other forums and working groups active in the water and sanitation sector in Kampala.

## Partnerships

Although, roles are allocated and decisions are made at the KWSF, implementation is done independently or in partnerships, where two or more actors work together on one project (interview 15). All actors involved in the partnership have their own tasks and responsibilities. The KCCA, for example, has partnerships with NGOs, development partners and universities, in some partnerships they initiate the project, while in others they implement them (interview 9 & 15). According to some of the interviewed (interview 4, 18, & 9), the partnerships are key for the success of the projects. In research done by Tukahirwa et al. (2010), it was found that all the local NGOs and CBOs and a majority of the international NGOs were working together with governmental actors in sanitation. Also partnerships between the private sector and the NGOs and CBOs are found, however, the international NGOs are not really collaborating with the private sector (ibid). Moreover, Memorandum of Understandings (MoU) are signed by the actors working together in a project to define the roles, responsibilities and the relation (interview 9, 15, & 18).

## Networks

Another form of collaboration is UWASNET. The CSOs concerned with water and sanitation are united in a national umbrella organisation called Ugandan Water and Sanitation NGO Network (UWASNET). UWASNET was formed in 2000 supported and funded by the MoWE, “which aim to build NGO capacities” (Beller Consult et al., 2004, p. 4-14). They are the link between the civil society organisations and the government, through which they complement the government and support and guide the members on the standards and guidelines set by the government (interview 2 & 21).

*“So ours is just to ensure that we coordinate the NGO activity as we make an effort to complement what the MoWE does. Because it is hard for different NGOs to reach the ministry” (interview 21).*

In the WASH sector there are three groups; the government, the development partners and the rest, UWASNET represents the rest group (interview 21). At the moment, more than 200/250 NGOs, CBOs, and private actors are member of this network (UWASNET, 2016). These members are international members; national members that are faith based organisations, based on minority groups or at community level; and there are private members (interview 21). Most of the members are active in rural areas, in urban areas there are just a few (ibid).

The network has five working groups in which the members participate, they share information and experiences about activities and innovations in order to “inform the sector policy and research” (UWASNET, 2016, p. 20). UWASNET has a coordinating function in this process, since they do not implement themselves but provide the platform as a way to communicate and streamline the civil society organisations and their activities (Tukahirwa et al., 2010). The members implement the projects and government policies (interview 21). According to interviewee 3, there is not so much collaboration at UWASNET. NGOs are member of the network but it does not seem that they work together (ibid). Interviewee 15 puts it differently, cooperation is done through UWASNET, but every civil society organisation works on its own.

Other networks active in sanitation in Kampala are the associations, PCEA and KPEA, as mentioned earlier. They also make it easier to coordinate the process (interview 11).

## Others Forms of Collaboration

There are several other meetings at a smaller scale that want to improve the coordination and collaboration between actors. At a yearly basis “sector ministries, civil and political leaders, local government staff and representatives of development partners” come together at the “Joint Government/Development Partners Sector Review (JSR)” (KOIS, 2011, p. 15). During these meetings the performance of the sector is discussed and a plan for the coming year is made in working groups (Matyama, 2012). Besides, the Sector Performance Reports are written and passed by the different actors involved to inform the actors and to get feedback on the reports (ibid). Due to this, the information flow between the actors involved improved over the years (KOIS, 2011).

Moreover, the KCCA and GIZ have founded the Sanitation High Level Steering Committee, including KCCA, GIZ, MoH, MoWE, NEMA and UWASNET (interview 8). The MoH, the MoES, the MoWE, the MoLG and the Ministry of Finance (MoF) are also meeting together in the annual Joint Sector Meeting during which policy issues are discussed over 3 or 4 days (interview 19). The MoF is present during these meetings to get informed about what has been done past year, what has failed, what is the way forward and how is the financial situation (ibid). Although the different governmental entities are engaging in these committees and meetings, not everyone agrees that they actually work together as well;

*“Government and government<sup>28</sup> not being able to strike a deal together and agree on moving forward, that is a big challenge. So we need to ensure that it is whatever the planning we get these government institutions to function together and to operate and do programmatic planning and budgeting and make sure that the challenges around sanitation are addressed collectively and not just individually” (interview 20).*

Thus, cooperation is practised in several ways; through forums, partnerships, networks, or other working groups or committees. As can be seen, there are different opinions about the degree of collaboration of the actors in Kampala. Most of the actors interviewed argued that there is cooperation between the actors and most of them agreed that everyone can enter the process and participate. Just some do not think that there is collaboration or that just a selection of actors can participate. Some argue, that the institutional arrangements need to be

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<sup>28</sup> ‘Government and government’ refers to the interaction between different governmental institutions, so two ministries or a local and national governmental actor.



streamlined in order to speak the same language concerning sanitation and that the several actors have to function and operate together in order to address the challenges around sanitation collectively.

## 4.6 Decision Making

The different actors cooperate in several ways and the process has been streamlined over the past years, as a result, “it is no longer possible to make a decision on your own, because whatever you will be doing, all the other players will know” (interview 17). This makes the process more transparent but also less open, since there is a stronger hierarchy of decision making. At the KWSF, for example, all actors have a say and can participate in the discussions, but in the end it is the KCCA who decides what will be done and by whom (several interviews<sup>29</sup>). “It sounds a bit like a dictatorship but in the end if it works better, then it makes sense” (interview 8). The KCCA is therefore seen by many actors as a dominant actor in the provision of sanitation in Kampala (several interviews<sup>30</sup>).

Consequently, “the end users have not been empowered enough .... Policies just come to them without their involvement, the KCCA tells you what to do, there is some space for the NGOs, but of course the space is within limits of the KCCA” (interview 4). Interviewee 6 argues that this is because the governmental authorities “are not comfortable with public contribution to decision making. People do not like to pay taxes for the services”, they will choose the “easy way”. The government, therefore, wants to make the decisions and ask the people to obey to the regulations. On the contrary, the KCCA states that “there is consultation of the public before decisions are made” (interview 18) and that “the KCCA has good relations with the other actors involved” (interview 9).

Hence, different actors have different perspectives or views on the issue and experience the way of decision making differently. Some argue that the KCCA determines the process and that end user participation is not included, while others, mainly the KCCA, state that the public is consulted before decisions are made.

## 4.7 Resources

In the previous parts the way of collaboration and decision making has been discussed. Linked to this are the resources actors have. The actors with the most influence or power in the process, are in most cases also the actors that have the most resources available. Although financial resources play a big role in this determination, access to knowledge and research and political legitimacy can also play a role in the amount of influence and power an actor has. In this part the resource structures of sanitation provision in Kampala are briefly described.

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<sup>29</sup> Interviews 8, 9, 17, and 20.

<sup>30</sup> Interviews 3, 4, 7, 9, 11, 12, 15, 16, and 17.

## 4.7.1 Financial Resources

The implementation of WASH activities depends strongly on the amount of funding that is available (Beller Consult et al., 2004). There are three ways of funding WASH activities in Kampala discussed here; general budget, direct project support, and internally generated funds (KOIS, 2011).

### General Budget

The so-called “general budget” includes the funding from the government as well as “grants and loans from development partners” (KOIS, 2011, p. 13, 34). Although the nominal expenditure to the water and sanitation sector increased over the years (Matyama, 2012), the funding from the government declined from 4.9% of the national budget in 2004/05 to 1.7% in 2011/12 (MoH, 2014). However, according to the NDP, the water and sanitation sector should be allocated 4,1% of the national budget in order to meet the MDGs (Matyama, 2012). Since sanitation is part of several ministries and local governments, the funding is spread out over these institutions (MoH, 2014). The MoF tracks these funds and allocates them over the sectors and different institutions based on the sector plans (ibid), after which the ministries, local governments and districts can fund projects themselves (interview 19). According to the Water and Sanitation Programme (WSP) (2011), this public funding is mainly used for the sewage system, public sanitation facilities and for creating an enabling environment in order to improve the sanitation. NWSC and NEMA, therefore, are funded by the government (interview 1, 10, & 19), and also the KCCA is partly supported by public funding (interview 5, 9, & 12).

### Budget Allocation: Sanitation Share

The ways of funding do not create enough support for the improvement of the sanitation situation in Kampala (interview 1). One of the problems causing this lack is the small share sanitation has from the total national budget. According to Niwagaba (2016), only 3% of the 5.15 million USD national budget allocated to public health, sanitation services and solid waste management is used for the improvement of “public health infrastructures”, “community sanitation and water supplies” (p. 20). For example, the Makindye Division in Kampala got around 800,000 USD<sup>31</sup> of which 2,000 USD<sup>32</sup> (0.3%) was allocated to sanitation and the Rubaga Division of Kampala got around 790,000 USD<sup>33</sup>, investing 5,000 USD<sup>34</sup> (0.7%) in sanitation (Beller Consult et al., 2004). Also at the KCCA around 1% of the total budget goes to sanitation (interview 9 & 18). Moreover, most of the budget provided for water and sanitation is invested in water and just a small part goes to sanitation (Beller Consult et al., 2004).

### Direct Project Support

It is difficult for the civil society organisations to get funding from the general budget allocated by the government and they are therefore dependent on the funding from donors or their internal financial means

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<sup>31</sup> 2,989 million Ugandan Shilling (exchange rate on 10<sup>th</sup> of May 2017).

<sup>32</sup> 8 million Ugandan Shilling (ibid).

<sup>33</sup> 2,916 million Ugandan Shilling (ibid).

<sup>34</sup> 20 million Ugandan Shilling (ibid).

(Tukahirwa et al., 2010). According to interviewee 7, 69% of the funding of the sector is donor funding. This funding is called direct project support. It is funding from donors and development partners directly going to projects without passing through the government (KOIS, 2011). The government and ministries do not fund directly (interview 18). Most of this donor funding comes from the international NGOs, who get in their turn funding from international partners, for instance, the EU, the Dutch government or Coca Cola (interview 17), and have therefore more resources (several interviews<sup>35</sup>). The local NGOs depend mainly on funding from the local branches of the international NGOs since there is little support from the government and they do not have resources themselves (Tukahirwa et al., 2010). Due to this dependency the influence of the international NGOs increases on the agendas and activities of the local NGOs, which makes them even more dependent and unable to survive on their own (ibid). Since the funding from the government is not enough to support the projects of the KCCA and UWASNET, most of the money comes from partners who bridge the gap between what is provided by the government and what is needed (several interviews<sup>36</sup>). According to interviewee 9, 80% of his work for the KCCA is outside the KCCA in partnerships with others (several interviews<sup>37</sup>). The PCEA is also funded partly by the general budget and partly by direct project support (interview 11 & 18).

## Internally Generated Funds

The third way of funding is the ‘internally generated funds’. For example, NWSC has internal funding through the water bill charges and the selling of the treated faecal sludge, that cover part of the treatment costs (several interviews<sup>38</sup>). The KCCA collects taxes and uses that as internal funding (interview 19). Also the NGOs try to increase the internally generated funds, by increasing the recycling activities and the membership fees. However, according to Tukahirwa et al. (2010), this has shown not to be effective.

## Service Fees

Besides the funding of the government, development partners and donors, the households are also expected to invest in the improvement of sanitation in Kampala. Households are responsible for their own latrines and thus also for the costs of construction, maintenance and emptying (Niwaigaba, 2016). However, not everyone can afford to pay for these services. Therefore, the households are supported by the international NGOs and local NGOs to construct latrines, by providing 90% of the costs, while the other 10% is paid by the communities or individuals themselves (Tukahirwa et al., 2010). For some groups, which are very vulnerable, like orphans, widows or elderly, 100% of the costs is covered by the NGOs (ibid).

One of the interviewed disagrees that people cannot afford sanitation services;

*“You do not need money to dig a latrine, you need energy to dig a pit. Poverty is a mind-set, you have managed to build a house, how can you fail to dig a latrine? I think it is just prioritization and the will. These people are telling you that they are very poor and that they cannot afford a latrine, but they own phones and they*

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<sup>35</sup> Interviews 4, 7, 9, 13, 15, and 17.

<sup>36</sup> Interviews 3, 4, 5, 8, 9, 11, 13, 15, 18, 19, and 21.

<sup>37</sup> Interviews 3, 4, 5, 8, 9, 11, 12, 13, 15, 18, and 19.

<sup>38</sup> Interviews 1, 3, 10, and 12.

*can afford airtime of 500 shillings<sup>39</sup> every day, call a friend to discuss a soccer game. They are wasting money. When it comes to the issues of pit latrines, I bet to be rude, but if you cannot afford to take care of your shit, having no latrine is no excuse in my opinion. I never want to use poverty as an excuse for having no latrine” (interview 17).*

Again the opinions differ among the actors involved. On the one hand, actors argue that households cannot afford the sanitation services as they are delivered right now and NGOs have to financially support these people. While on the other hand, poverty is seen as a mind-set and it is about priorities instead of the financial means that make sanitation facilities lacking in households.

The sanitation sector is thus financed in several ways; through the general budget, direct project support or internally generated funds. The share from the national budget provided for sanitation provision is so small that it is not enough to provide the sanitation facilities needed. The gap between what is there and what is needed to improve sanitation is bridged slightly by the support of the international NGOs and development partners. Besides, the households invest partly as well by paying the service fees, if possible. Thus, although the means and structures would be there, there is not enough money available to improve the sanitation as is needed.

## 4.7.2 Non-Material Resources

Another form of resource that can determine the influence and power of an actor are the non-material resources like knowledge and research, and political legitimacy.

According to interviewee 4, “everything starts with research, with appropriate technologies that people can afford” and this is quite essential for the improvement of sanitation in Kampala. Especially Makerere University is involved in research about sanitation and works together with international entities, NWSC and other universities in Kampala (several interviews<sup>40</sup>). So, although Makerere University does not have many financial resources to influence the process of sanitation they have research which makes them an essential player (interview 9). Also some NGOs and UWASNET conduct research, which is mainly focused on the technical and innovative part of sanitation provision (interview 7 & 8), in order to provide low cost and low tech solutions affordable for all people (interview 4). With these innovations they try to empower the private sector by training and recruiting entrepreneurs who are able to empty sanitation facilities (ibid).

Since just a few actors are involved with research for the sector, there is quite a dependency on each other’s resources (interview 7). The research is therefore shared among the actors working together. The KCCA, for example, does not conduct research themselves but use the research of other actors (interview 3 & 9). More research is necessary to improve the sanitation situation (interview 20), furthermore, the end-users of the sanitation have to be included in the research more often, since involvement of them is important to make the plans succeed (interview 4); “participation is vital for the sustainability of the project” (interview 5).

Another non-materialistic resource is political legitimacy. In the case of Kampala, the KCCA has gained political legitimacy by the national government when the legal framework was decentralized. The Public Health Act and the Local Government Act have mandated the KCCA to manage services like the provision of sanitation.

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<sup>39</sup> “Airtime of 500 shilling”: airtime is prepaid used on your phone. 500 shilling is 14 USD cents (exchange rate on 4<sup>th</sup> of September 2017)

<sup>40</sup> Interviews 1, 3, 9, and 16.

The KCCA is quite a new institute and although it has received this legitimacy from the national government, it still needs some time to really earn the legitimacy.

In this section some of the resources used by the actors are briefly addressed. There are three types of resources visible in Kampala; financial resource, research and knowledge, and political legitimacy. The ownership of resources gives actors power to influence the process and improve the situation as they seem needed.

In this chapter the situation concerning sanitation provision in Kampala is elaborated on. The current sanitation situation is briefly explained using the sanitation chain. Besides, the institutional framework, the actors involved, the cooperation, decision making and resources of the actors are described in order to sketch a picture of the way sanitation provision is governed. In the following part this information will be analysed using the theoretical framework discussed earlier (see [chapter 2](#)).



# 5 Analysis of Kampala

In the last part, the sanitation situation, the involved actors, the ways of collaboration and decision making, and the resources in Kampala concerning urban sanitation have been described. In this section, the information will be connected to the theoretical framework provided earlier (see [chapter 2](#)). This will be done, first, by defining what kind of governance mode is practised on urban sanitation in Kampala, and second, by elaborating on the content of the policy arrangement using the theoretical framework of the Modernised Mixture approach.

## 5.1 Governance Modes

There are four possible governance modes; hierarchical governance, closed co-governance, open co-governance, and self governance. These governance modes are defined along the lines of three dimensions; actors and their coalitions, resources determining the power and influence of the actors, and the rules of the game (see [chapter 2](#) for a more extensive explanation). An analysis of the three dimensions will be given concerning the governance of sanitation in Kampala.

### 5.1.1 Actors and Coalitions

In Kampala both governmental and non-governmental actors are involved in the provision of sanitation. This is done through forums, partnerships, networks and working groups where the actors involved come together to achieve a certain goal. The coalitions differ between small groups, like partnerships and the Steering Committee, and big networks and forums, like UWASNET which has over 200 members, and the KWSF where all actors can participate. There are thus several ways of working together in coalitions. Among the different coalitions there are coalitions supporting the dominant perspective. These coalitions mainly include the governmental actors, like the ministries, the KCCA and NWSC, but also some international development agencies, as GIZ. The opposing coalitions are formed by non-governmental actors grouped together under UWASNET.

There is, thus, an unlimited amount of actors involved in sanitation in Kampala, being governmental, as well as, non-governmental. Participation is therefore accessible and flexible for all who want to be involved. Implementation is done at a more individualistic basis in partnerships, small coalitions, or independently from any other actor. Due to this large mixed group of actors, Kampala complies most with the open co-governance criteria on the dimension of actors and their coalitions.

### 5.1.2 Resources, Power and Influence

Three types of resources are discussed in Kampala; the financial resources, knowledge and research, and political legitimacy. The financial resources include funding from the government, development partners, and international NGOs. The budget from the government and the development partners is allocated by the MoF over the sector and the different institutions, after which the ministries and local governments fund the projects

themselves. Since sanitation is part of several ministries and the KCCA, the budget is spread out over these institutions. However, sanitation is not allocated a big share of the national budget.

This funding does not support the non-governmental actors, they rely on funding from the international NGOs or international development partners directly going to projects without passing the government. Through this mechanism the local NGOs mainly depend on the international NGOs, due to which the influence of the international NGOs increases and influences the activities implemented by the local NGOs. Also governmental projects are funded in this way. All the financial resources together are not enough to improve the sanitation situation in Kampala as is necessary.

Besides the financial means, there is also knowledge and research, and political legitimacy as a resource of the actors. Some NGOs and universities are conducting research on sanitation in Kampala. Since not so much research is done yet and not so many actors are involved with research, actors depend on each other's knowledge and experiences. Political legitimacy lies mainly with the KCCA. The national government has given them the right to be the local authority, however, they are not fully accepted yet by all actors and still have to prove their authority.

Power is spread out over the actors who have the resources. Some actors have more resources and thus more power, like the KCCA. The KCCA has financial resources from the national government, the development partners and the international NGOs, and they have political legitimacy. Some actors try to improve the situation with all they got, like the universities who do not have much financial resources for sanitation but who provide the sector with knowledge and research. The actors depend on each other's resources and therefore they have to work together in order to reach the goals set. This dependency creates a power division between the governmental and the non-governmental actors.

Although all actors participate in forums or other forms of collaboration where issues are discussed, the KCCA makes the final decision. The outcome of the process is therefore determined by the governmental actors and not by the non-governmental actors. So, even when the power is divided among many actors, the influence is still with just a few.

Thus, the resources are controlled by governmental and non-governmental actors. The governmental actors have financial means and political legitimacy, while the non-governmental actors have financial means and knowledge and research. This makes the actors dependent on each other, due to which the power is divided. This implies that in the dimension of resources, power and influence, the governance of sanitation in Kampala can be connected to the closed co-governance mode. However, since the governmental actors are most influential and make the final decision, the way of governance is slightly overlapping with the hierarchical governance mode as well.

### 5.1.3 Rules of the Game

The rules of the game of sanitation in Kampala form the procedures of decision making and the implementation of the WASH activities, and they shape the behaviour and roles of the actors. There are two rules defined in this analysis; the access rule and the responsibility rule. In Kampala all actors are allowed to participate in the process of sanitation provision. The responsibilities and tasks are divided among the involved actors. The governmental actors make, monitor and evaluate the policies, and they enforce the regulations and coordinate the actors participating. The non-governmental actors are more involved at the community level; constructing,

maintaining and emptying the latrines, and sensitizing and mobilizing the population. They also advice, support and complement the government.

Although the MoWE and the KCCA are the leading actors in the provision of sanitation in Kampala since they streamline the activities and actors, they do not decide what actors can and cannot participate in the process and what tasks they should do. They only make sure that the several actors communicate in order to avoid overlap in the activities. Due to this division of roles, the involved actors work together in a flexible way and are able to take initiatives. This suggests that on this dimension of the governance modes, the way sanitation is governed in Kampala fits best with the open co-governance mode with a slightly hierarchical touch due to the leading role of the governmental actors in the process.

**Table 4: Governance modes Kampala**

Ideal-typical governance arrangements				
	Hierarchical	Closed co-	Open co-	Self
Actors	Mainly governmental actors	Select mixed group of actors	Large mixed group of actors	Mainly non-governmental actors
Power	With government	Pooled	Diffused	With non-government
Rules	Governmental coercion	Restricted cooperation	Flexible collaboration	Non-governmental forerunning

In [table 4](#) the characteristics of the governance of sanitation in Kampala are connected to the theory of the governance modes. As has been explained above, the actors and their coalitions fit best with the open co-governance due to the large mixed group of actors. The resources are divided among all actors and so is the power. However, the influence mainly relies with the governmental actors. Therefore, the closed co-governance mode, with a slightly hierarchical touch, complies best with the characteristics of Kampala. The rules of the game go best together with the open co-governance mode, slightly overlapping on the hierarchical governance mode, since everyone can participate but the government takes the final decisions. The way sanitation is governed in Kampala is thus a mixture of open co-governance and closed co-governance slightly touching upon hierarchical elements as well.

## 5.2 Modernised Mixture approach

The organisational part of the policy arrangement of urban sanitation is analysed and defined. In the next section the content of the arrangement will be discussed using the MMA. Although the policy discourse of the policy arrangement consists of two levels, only the second level, about the issue at stake, will be addressed here. Concerning this analysis, the issue at stake is urban sanitation provision in Kampala.

There are four variables defining whether the sanitation system in place is a conventional system, alternative system, a MMA or another combination (see [table 3](#) for all the 16 possibilities). The variables are

organisation, end-user participation, sanitary flows, and spatial-technical (see [chapter 2](#) for a more extensive explanation). In this part, the current sanitation systems in Kampala will be discussed using these four variables forming the fourth dimension of the policy arrangement; the policy discourse.

### 5.2.1 Organisation

The organisational variable is about what actor(s) determine the tasks and roles of the actors involved in the provisioning of sanitation in Kampala. This variable overlaps with the governance mode discussed earlier. In Kampala an unlimited amount of governmental and non-governmental actors is involved in the provisioning of sanitation. The governmental actors coordinate and streamline the process, tasks and the implementation areas in order to prevent overlap, but they do not determine what actors participate and what tasks they should do. Participation is, thus, accessible to all who want to be involved. However, the decisions are made by the governmental actors, mainly the KCCA, who also determine the outcome of the process. This coincides with point 1 on the scale of the organisation variable (see [section 2.3.1](#)). However, the organisations and companies decide themselves whether they participate or not and in what area and activity, therefore, it is suggested that the organisation is quite decentralized (point 3), but with a leading role for the governmental actors.

### 5.2.2 End-User Participation

The variable of end-user participation analyses which actors execute and implement the different tasks and what the role of the households is in the provisioning of sanitation. This has also been discussed in the analysis of the governance modes and thus this variable overlaps with parts of the governance modes as well. In Kampala, the governmental actors make, monitor and evaluate the policies, and they enforce the regulations and coordinate the actors participating. They are supported by international development agencies. The non-governmental actors are more involved at the community level, constructing, maintaining and emptying the latrines, and sensitizing and mobilizing the population. They also advice, support and complement the government. The households are on the receiving end of the sanitation cycle in Kampala, but they still have tasks assigned concerning sanitation provision. Households are responsible for the construction, maintenance and emptying services of their sanitation and they have to pay for the services provided. Since the end-users are more involved in the process than the creation of awareness, sensitization, mobilization and the payment of the services, and they have to find the resources and services themselves, the end-user participation for on-site sanitation in Kampala is point 3 on the scale (see [section 2.3.1](#)). The end-user participation for off-site sanitation can be scaled at 1, since the households only have to pay for the services.

### 5.2.3 Sanitary Flows

The sanitary flows tells something about how the waste(water) is collected and treated. In Kampala just 7% of the population is connected to the pipelines of the sewage system, the rest of the sanitation is emptied with trucks or not at all. The off-site sanitation flows through the pipes to the treatment plant. Storm water and greywater from the households flow down the neighbourhoods into the several channels of the city, which partly end up in treatment plants like Lubigi and partly in Lake Victoria. The trucks with the sludge from the on-site

sanitation bring its content to the Lubigi treatment plant as well. This means that both domestic wastewater and storm water are collected and treated at Lubigi. Due to this, it can be suggested that the sanitary flows in Kampala are collected and treated all together and thus point 1 at the scale of this variable.

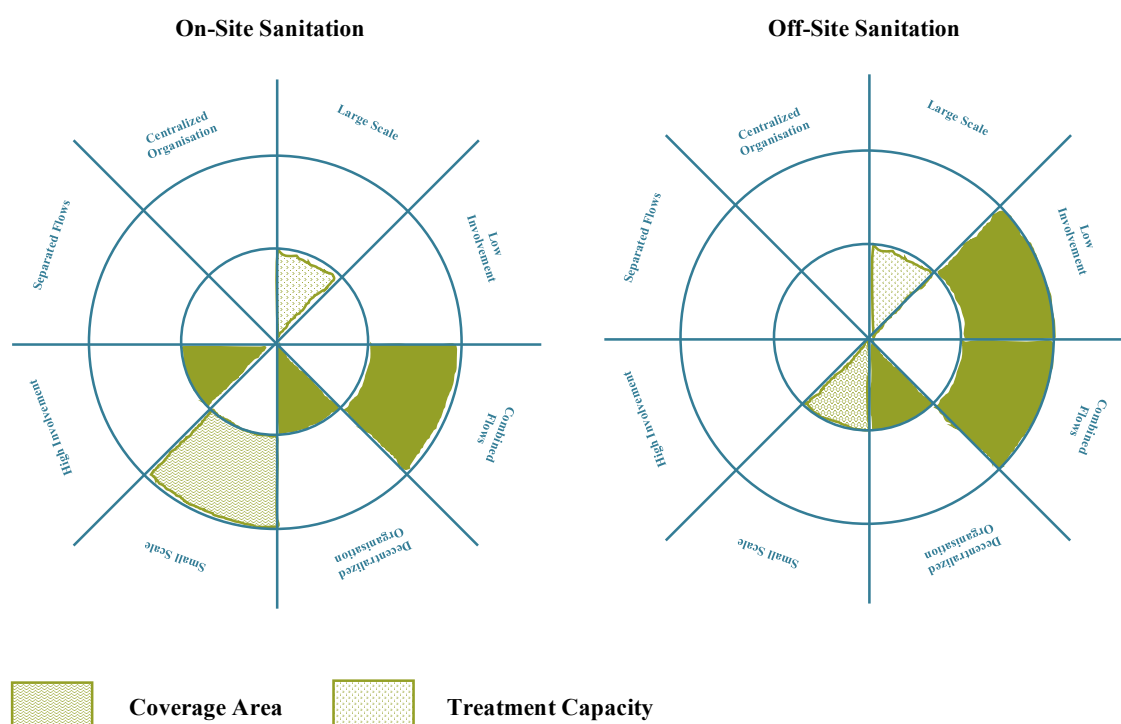
## 5.2.4 Spatial-Technical

The spatial-technical variable analyses the coverage of the sanitation infrastructure and the treatment capacity. In Kampala there are several ways of sanitation provision. Off-site sanitation, covering a small part of the city, and on-site sanitation on which the majority of the population relies. Although the off-site sanitation facility only serves 7% of the people of Kampala, it is spread all over the Central division. It covers, thus, certain parts of the division, but not all people in the division. Therefore, it can be argued that the coverage area of the off-site sanitation system is point 3 on the scale of the spatial-technical variable – a community or neighbourhood. On-site sanitation cannot be considered as a planned infrastructure by the city planners, but is rather implemented by the households themselves over the years. The on-site sanitation facilities only serve a household or a cluster of houses, the coverage area for on-site sanitation is thus point 4 on the scale.

The treatment capacity, however, can be scaled differently. Since all collected faecal matter is brought to the few treatment plants, both off-site and on-site sanitation are treated at the same places. However, there are just two plants that treat faecal sludge at the moment and which are already operating on full capacity. Lubigi handles most of the faecal sludge and treats 400 m<sup>3</sup> per day while the demand for on-site sanitation treatment is almost 1000 m<sup>3</sup>, thus excluding the sewage system. Since all faecal sludge and wastewater from the city comes to two treatment plants it can be argued that they treat the whole city (point 1). However, not even half of the produced faecal matter is treated at these plants and thus not even half of the population of Kampala. Therefore, the treatment capacity of Kampala is scaled at 2 on the spatial-technical variable, serving a population as big as a division.

In [figure 14](#) the characteristics of the current sanitation systems in Kampala are connected to the theory of the Modernised Mixture approach. Since the approach to on-site and off-site sanitation differs, two figures are made for the current situation. As has been explained above, the current organisation in both on-site and off-site sanitation can be depicted as decentralized, with some centralized elements. The current sanitation flows are in both cases combined. The difference between the on-site and off-site sanitation system is in the end-user participation and spatial-technical variables. For on-site sanitation the end-users are quite involved, while the participation of end-users in off-site sanitation is low. The spatial-technical variable is even more diverge since the coverage area of the collection system is different than the treatment capacity. Since both sanitation systems are treated at the same place in the same way, the treatment system is scaled 2 for both. The coverage area for off-site sanitation, however, is bigger than that of the on-site sanitation. Therefore, a difference is seen at this variable (see [figure 14](#)).

**Figure 14: Sanitation systems in Kampala using the variables of the MMA**



## 5.3 Combining the Theories

The analysis of the MMA can be connected to the 16 possible combinations explained in [chapter 2](#). On three of the four axes the analyses for on- and off-site sanitation is quite clear. Only the spatial-technical variable has different options because of the distinction between the coverage area and the treatment capacity. The on-site sanitation system corresponds, therefore, with combination 13 and 14, and the off-site sanitation system with combination 9 and 10 (see [table 3](#)). Combination 13 and 14 are MMA's that can be connected to the open co- and self governance modes. Combination 9 and 10 are no MMA's due to low end-user participation and can also not be connected to a governance mode. Analysing the way of governance of urban sanitation in Kampala showed that it complies with a mixture of open and closed co-governance slightly touching upon hierarchical elements. It was argued in the theoretical chapter that an open governance mode would most probably implement combination 13 to 15, therefore, only the on-site sanitation confirms the hypothesis. Since the governance mode practised in Kampala has also some closed co- and hierarchical governance elements combination 1 to 4 are possible sanitation systems that could have been implemented as well. However, the off-site sanitation system cannot be connected to a governance mode, and thus also not to the closed co- or hierarchical governance mode.

Actors realise that increasing the off-site sanitation infrastructure might not be the best solution for the city, but the plan is still discussed as a future possibility. This means that some actors strive for an increase in the coverage area of off-site sanitation. At the same time, it is possible that the organisation of the sanitation system will transform from a more decentralized structure to a centralized structure, due to the closed co- and hierarchical elements of the way of governance in Kampala. The overlap with these two governance modes can be explained by the transition from the KCC to the KCCA in 2011, that happened under the KCCA Act (2010). The act placed



more responsibilities on the local authority than before, but because it has just been six years since the transition took place, the role and influence of the KCCA are not yet stabilized and clear. The KCCA still has to gain some authority and has to be accepted by the people and the other actors in order to have full political legitimacy. This has partly to do with the way of enforcement by the KCCA, which is still a bit weak and inconsistent. However, the KCCA is improving this by creating clear standards and rules, and making the enforcement happen stricter and more consistent. This might explain the overlap on the closed co- and hierarchical governance modes, and if the KCCA continues to gain control over the process the organisation might become more centralized and implementing a centralized sewage system for the whole city is than more likely.

The current way of governing, however, is open and cooperative and matches with the current on-site sanitation system implemented. It is because of this, and the topography and water availability of the city, that it is recommended to continue this way in order to improve the sanitation situation in the city.

## 5.4 Role of the Government

So far, the analysis has not focused specifically on the role of the governmental actors in the provisioning of urban sanitation, this will, therefore, be discussed in the following part.

In Kampala the governmental actors work together with the non-governmental actors in order to improve the sanitation facilities for the people. The governmental actors have a leading role in the process and streamline and coordinate the collaboration. Although the governmental actors are part of the supporting coalitions, they accept challenging coalitions opposing the dominant perspective.

The governmental actors have financial means and political legitimacy used to express their power and influence. The allocation of the general budget over the different governmental institutions active in the sanitation sector is done by the MoF. This means that the governmental actors do not support the non-governmental actors with financial means. Besides, the money allocated to the sanitation sector by the government is so low that the governmental projects also rely on funding from development partners and international NGOs. Moreover, the governmental actors also depend on the non-governmental actors considering the research done in the sector; most research is done by the non-governmental actors, who share their information and experiences with all other actors involved. Only political legitimacy lies completely with the governmental actors, although the authority of the KCCA is not fully accepted yet by the other actors. Due to this division of resources, the governmental actors depend on the non-governmental actors – and vice versa – and are forced to work together with them, they are not the only actors with power. However, the KCCA has financial means and political legitimacy and is therefore able to make the final decision and determine the outcome of the process.

The responsibilities of the governmental actors, as mentioned before, are focused on the policies, the regulations and the coordination of the process. Although they streamline the actors, they do not decide what actors can participate and what the division of tasks is, instead, this is done by the actors themselves.

Overall, the governmental actors have a leading role in the process, but they do not decide everything. They work together with and depend on the non-governmental actors, due to a lack of resources; the non-governmental actors complement the governmental actors.









# 6 Kigali

## 6.1 Rwanda

To better understand the situation in which the city dynamics of rapid urbanization, high population growth and high poverty rates are taking place, some background information is given. This helps to sketch a better picture of the sanitation situation in Kigali and more specifically in the informal settlements.

Rwanda is located in the Great Lakes Region in East Africa (see [figure 15](#)) and it is called ‘Land of a Thousand Hills’, earning this name due to the many hills and valleys and an average altitude of 1700 meters (Rwanda Environmental Management Authority [REMA], 2009). Due to this geography, Rwanda experiences high soil erosion and loss of water (EWSA, 2016). Furthermore, the geographic characteristics lead to a “mild and cool climate”, with an average temperature of 18,5 degrees Celsius and 1230 mm rainfall per year (REMA, 2009, p. 1). Rwanda’s land consists of 46,3% arable land and 8% of its area is covered with surface water (UNDP & Government of Rwanda [GoR], 2015).

The country is a little bit smaller than Belgium but its population is bigger, reaching a total of 12.2 million. Similar to Uganda, almost half of the population (42%) is younger than 14 years old and 19% is in between 15 and 24 years old (CIA, n.d.). With such a big proportion of the population being fertile at the moment or in the near future and a fertility rate of 3.9 children per woman, the population is growing every year with 2.5%, and probably even more in the future (WB, n.d.). Rwanda’s population density is 471 people per square kilometre, which is more than ten times the average of Sub-Saharan Africa and the densest populated country in the area (ibid).

In Rwanda, 29% of the people (3.5 million) live in urban areas (WHO, 2017) and urban areas are growing with more than 6% yearly (WB, n.d.). Kigali inhabits 1.3 million people “representing 10% of the country’s total population” (Joshi et al., 2013, p. 4). People are returning to Kigali after time in exile, or are seeking for employment or business opportunities, since the city is experiencing economic prosperity (Sano, 2007). 60 to 70%<sup>41</sup> of Kigali’s inhabitants are living in informal settlements covering up to 7% of the city area (Joshi et al., 2013). Like in Kampala, this means that the population density in informal settlements is high. Moreover, due to wetland occupying 19% of the area of Kigali and 31% occupied by “steep slopes” “just one-third of the city’s land is available for development” (Joshi et al., 2013, p. 5 & 77). These hills and slopes determine the waste

**Figure 15: Map of Rwanda**



Source African.com, retrieved May 2016 from <https://www.africa.com/countries/rwanda/map>.

<sup>41</sup> Different sources give different numbers of people living in informal settlements: Höhne, 2011; Tsinda et al., 2013; Spit et al., 2016; Pivot, 2016; interview 31 & 33.



streams in the city (Höhne, 2011). Furthermore, the city expended its boundaries in 2005 taking up rural areas, this resulted in an 83% coverage of the city by natural and arable land, which means that there is just 17% of urban area, including residential areas (9.2%), commercial, and industrial areas (Joshi et al., 2013; EWSA, 2016).

Rwanda's GDP per capita<sup>42</sup> is valued at \$1,759 in 2015, which ranks it 207th out of 229 countries in the world (WB, n.d.). 47% of the GNP origins from agriculture on which 87% of the population relies (REMA, 2009). According to the UNDP and GoR (2015), 37% of the total population of Rwanda is either severely poor or moderately poor, and there is a gap between the percentage of poor in the rural area (42%) and in urban areas (15%).

As mentioned before, the urban areas are growing each year with 6%, the population of Rwanda is increasing with 2.5% yearly and 15% of the urban population as labelled as living in poverty. These trends make the informal settlements in the cities grow and put pressure on the provision of sanitation. In order to handle this pressure changes are needed to improve the situation for all people. In the next part the sanitation situation in Kigali will be explained.

## 6.2 Sanitation Situation in Kigali

In this part the situation of the sanitation in Kigali will be addressed on the basis of the sanitation chain presented by the IRC model as is shown in chapter 3 (see [figure 10](#)). Kigali consist of three districts; Nyarugenge is partly urban and partly rural, it is the city centre and the area where the commercial activities are located (EWSA, 2016). However, it also consists of some informal settlements, which are located on the slopes of the Nyarugenge hill (see orange areas in [figure 16](#)). Gasabo is mainly rural and Kicukiro is mostly urban (interview 24).

**Figure 16: Map of Kigali**



Kigali

Source: Joshi et al., 2013, p. 77.

<sup>42</sup> PPP, current international dollar.

## 6.2.1 Capture and Containment of Faecal Sludge

The first two steps of the sanitation chain are the capture and containment of the faecal sludge. There are two kind of sanitation facilities; on-site and off-site sanitation. In this part the situation of on-site and off-site sanitation in Kigali will be described.

In Kigali, 96% of the households have constructed on-site sanitation, of which most are pit latrines (91.1%) and a few are septic tanks (Atkins, 2016). Open defecation is basically not practiced anymore (Tsinda et al., 2013). However, the coverage decreases to 58% if only hygienic and safe sanitation facilities are taken into account and 72% if hygienic and safe shared toilets are included (MININFRA, 2016a). Just 4.9% of the households have a flush toilet and most of them have a pit latrine as well in case there is no water supplied (ibid). The economic wealth determines in most cases the type of latrine used by a household (interview 26 & 29); the wealthier people use septic tanks, while people living in informal settlements deal with pit latrines (REMA, 2009). These pit latrines are mainly unlined pits in poor condition, since the maintenance is lacking and the pits are emptied rarely (interview 25). As a consequence, the content of the latrine just flows into the ground and surface water polluting it (interview 26 & 31). Sharing latrines is very common in these areas; the average households sharing one latrine, found in a research done by Tsinda et al. (2013), is 4 and in extreme cases it can be up to 15 households. Besides, public toilets are rare in Kigali. According to EWSA (2016), there are only 15 public toilets, which are located at places like markets and bus stations. The public latrines are owned by private operators (interview 31).

Besides the on-site sanitation in Kigali, there exists some kind of off-site sanitation as well. Although a centralized sewage system is none existent (interview 25), there are around ten (Umuhoza Mbateye, Nhapu, Wali, & Banadda, 2010) semi-centralized networks serving households or large-scale users, like hotels, hospitals, offices and industry at or near the location of the entity (Spit et al., 2016).



Different toilets in Kigali

Currently, the government is resettling households from unplanned areas to neighbourhoods that are planned and have infrastructure, like sanitation (interview 26 & 27). This is, according to interviewee 32, because “these people in slums are not able to manage with the urban requirements”. These “Secondary Cities” are a bit further away from the city but have better conditions to live in (several interviews<sup>43</sup>). However, since most of the people living in the informal settlements do not own the house or plot they are living on, but rent it from a land

<sup>43</sup> Interviews 26, 27, 31, and 32.

owner, they do not receive the right to live in these new cities (Vincent, personal communication, January 31, 2017). As a consequence, the land owners increase the rent since the houses are of higher standards and the people who used to live in the informal settlements cannot afford the new housing and have to look for other places to live.

As explained above, the majority of Kigali depends on on-site sanitation since sewage systems rarely exist. There are only a few decentralized systems but no centralized sewerage. Also public facilities are almost absent in the city, and people mainly depend on shared on-site facilities. The informal settlements are being resettled to new housing areas, which most of the former residents cannot afford. Instead of solving the problem, the issue is shifted.

## 6.2.2 Emptying and Transportation of Faecal Sludge

*“People have toilets, that is not the problem. The problem is when these toilets fill up!” (interview 25).*

The next steps in the sanitation chain are emptying and transportation of the faecal sludge. There is a difference between the way on-site and off-site sanitation are emptied and transported. The faecal sludge from the entities having a decentralized sewage systems do not have to be collected or transported, since it flows on its own to the intended treatment plant. Households or premises not connected to the off-site sanitation systems have to deal with their faecal sludge and wastewater in another way.

Pit latrines fill up once in the 4 to 7 years “depending on the physical conditions and household’s size” (Höhne, 2011, p. 54). When a pit latrine is full there are two options, according to Rwandan Water and Sanitation Corporation (WASAC) (as cited in Spit et al., 2016), either a new pit has to be constructed or the content of the pit has to be removed. The majority of the households using pit latrines, dig a new hole and close the filled one off (Othello Ben Dedale, 2015). However, there is not always enough space to construct a new pit, in that case the full pit has to be emptied (interview 27, 29, & 30).

There are several ways to empty a pit; as is discussed in the part about Kampala, pits can be emptied manually, semi-manually and mechanically, this also applies for Kigali. Private operators empty the on-site sanitation facilities. The manual way of emptying is done by the informal sector mainly during the night, so that the authorities will not notice the practice (Spit et al., 2016). The content of the pit is dug out bucket by bucket and put in another hole or it is dumped further away in drainage channels (interview 25 & 26). This way of emptying is most of the time practiced when it is raining, in order for the content of the pit to flow away easier (Atkins, 2016). Another way of getting rid of the faecal sludge is by digging a hole in the latrine, so that when it rains the content just flows out of the pit draining into the water systems of the area (Sander, 2015; several interviews<sup>44</sup>). The manual way of emptying mainly happens in informal settlements and can have serious consequences, like the spreading of diseases and infant mortality (Tsinda et al., 2013). Since it is practiced in the informal sector, not so much is known about this practise.

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<sup>44</sup> Interviews 29, 30, 31, 32, and 33.



eVac

The formal way of emptying pit latrines is by employing semi-manual or mechanical entrepreneurs. This is mainly done by private operators and the municipalities (Othello Ben Dedale, 2015). A semi-manual technology existing in Rwanda since May 2016 is the eVac. The eVac is a “portable pit emptying machine” developed in South Africa and provided by Water for People to Pivot (Sklar, 2016, p. 2). Pivot is a private entrepreneur interested in the reuse of faecal sludge as fuel (a more elaborate description on Pivot will be given later in [section 6.4.2](#)). The eVac is used in an enclosed environment creating vacuum with electricity to pump the sludge out of the pit with a horse pipe into the container (interview 25). Since it is done in an enclosed environment nobody is affected (ibid). It is an automatic device and can reach 8 meters deep to pump the sludge out (ibid). It is accepted by the City of Kigali (CoK) because it is believed to be safer than the Gulper, which is used in Kampala and rejected in Kigali (ibid). However, the eVac is more expensive than the Gulper, and many people cannot afford to make use of the service (interview 25; Redampta & Dennis, personal communication, February 2, 2017). The advantage of the eVac is that it can access pits located in informal settlements where the roads are small and where tankers cannot come (interview 25, 30, & 33). Pivot has trained a team of workers to know how to use the eVac and two engineering technicians are hired to see how the process of emptying can be made “safer and more efficient” (Sklar, 2016, p. 2). At the moment, Pivot is the only formal actor active in the provision of semi-manual pit emptying services, indicating that there is still quite some space at the market for the collection of on-site faecal sludge. The process of emptying takes around one working day per pit, since solid waste is thrown in the pit making it more difficult for the eVac to pump the sludge out. Therefore, before they can start mechanically, the solid waste has to be taken out manually, taking up to 4 hours (interview 25; Redampta & Dennis, personal communication, February 2, 2017). In [box 2](#) a description is given from my observation of pit emptying with Pivot.

The mechanical way of emptying is by using the vacuum tankers. These tankers use vacuum pumps to suck the sludge out of the pit latrine or septic tank into the tanks (WASAC, as cited in Spit et al., 2016). The tanks are between the 5 and 30 m<sup>3</sup> big and only go to the dumping site when their tank is full in order to reduce the transportation costs (Othello Ben Dedale, 2015). The disadvantage of these tanks is that they are too big for most of the streets of informal settlements and can therefore only serve households that are accessible (WASAC, as cited in Spit et al., 2016). Another disadvantage is that they can only empty pits that are lined, otherwise the risk of collapse is too high (Othello Ben Dedale, 2015). Moreover, there are few trucks available to empty the latrines and septic tanks (Höhne, 2011). Although they use full mechanical equipment, the employees are not enough protected during the emptying (Othello Ben Dedale, 2015).



Trucks are unable to access the pit



## Box 2: Pit Emptying

During my stay in Kigali I went to see how a pit was emptied by the team of Pivot. It was a pit used by 6 households somewhere in the middle of an informal settlement. The truck was parked on the main road, which was still broad enough. From the truck you had to go down some steps, turning to the left for another 15 meter. There was the pit. The pit was in a small 1.5 by 1.5 meter building somewhere in the corner of the compound of the households. Pivot put a canvas in front of the entrance of the compound, stating that no one could enter the place due to safety reasons. There were 5 workers constantly working, wearing an overall, gloves and mouth caps for protection, they were vaccinated as well against diseases as Hepatitis B.

The tasks were divided; one man was taking out the solid waste of the pit with a hooking instrument, one man was helping him with putting this into the barrels, another man was getting jerry cans of water to clean the barrels and place when needed, and two men were walking up and down bringing the equipment and taking the full barrels to the truck. Although the men were protected, still faecal sludge came in touch with their skin and bracelets, since the wrist were not covered.

Three other people were present at the place; the truck driver, the manager of the team and a girl tracking the time every activity took for the improvement of the service.

Estimated by the man emptying the pit, the pit was 10 meters deep and 1 m<sup>2</sup>. It took the team 2 hours with the hooking instrument to take out 8 barrels of 50 litres of solid waste. After this a claw was used to get the plastic bottles that were not captured by the hooking device. The full barrels were lifted up the shoulders and brought to the truck parked at the main road (which was a DHL truck). When the solid waste was removed, the eVac was installed, the tube was put into the pit filling the barrels automatically. After 5 hours the pit was emptied. Due to this time consuming practise, Pivot can only empty one pit a day.



Financially, the mechanical way is least attractive for people with less economic wealth. It costs around 120 USD<sup>45</sup> for 10 m<sup>3</sup> and 180 USD<sup>46</sup> for 20 m<sup>3</sup> emptying (Atkins, 2016). Many people cannot afford this service and therefore they do not empty their pits in a mechanical way and choose for less safe options, like digging a new pit (several interviews<sup>47</sup>). According to interviewee 26, it costs the households 95 USD<sup>48</sup> to make use of the emptying services of Pivot (interview 26 & 31; Redampta & Dennis, personal communication, February 2, 2017). Part of this goes to the salary of the workers, which is 3.50 USD<sup>49</sup> per day, and part of it covers the transport costs, including a truck, a truck driver, the fee to dump at the dump site (6 USD<sup>50</sup>) and the fuel (Sklar, 2016). Since Pivot does not own their own truck yet, they rent a truck and hire a truck driver which makes the transportation costs higher (Redampta & Dennis, personal communication, February 2, 2017). Not all the costs are covered with this household fee, part of it is also covered by the fuel value Pivot makes out of the collected faecal sludge (Sklar, 2016).

However, not all the people can afford to pay for this, are not able to pay it at once, or are not willing to pay for the services (several interviews<sup>51</sup>). Interviewee 34 argues that “maybe they cannot pay it at once but they have the money for a toilet, because they also have money for a lot of other stuff”. This is because people are not aware of the effects of inadequate sanitation on their lives or because they do not feel responsible for it (interview 24 & 30). Since they are not aware, sanitation is not a priority for them (interview 32). Meanwhile, the majority of the people are not owning the house they live in and are therefore not feeling responsible to invest in the services (interview 34; Redampta & Dennis, personal communication, February 2, 2017). However, it is also not a priority for the landlords, meaning that no toilets are constructed, maintained or emptied. Although toilets have been constructed and financed by subsidies or donors, some toilets are not used for defecation, but rather as a storage for the households (interview 34). So, due to a lack of money, awareness, priority, or feeling of ownership people cannot or are not willing to pay for the services of adequate sanitation provision.

Thus, faecal sludge from houses and premises connected to decentralized systems does not have to be collected and transported. The rest, which is all on-site sanitation, is emptied in the informal ways, with an eVac or by a vacuum tanker, depending on the location, the income and the characteristics of the latrine. There is just one operator active in the emptying of pits in informal settlements, and they can handle one pit a day. This is by far not enough to serve the whole city, the demand for the services is therefore higher than what can be supplied at the moment. This would imply that there are many opportunities for private and public initiatives to fill this gap. However, not everyone can afford the services or is willing to pay for it due to a lack of money, awareness, priority and the feeling of ownership.

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<sup>45</sup> 100,000 Rwandan Franc (exchange rate 20<sup>th</sup> of September 2017).

<sup>46</sup> 150,000 Rwandan Franc (ibid).

<sup>47</sup> Interviews 24, 25, 29, 30, and 32.

<sup>48</sup> 80,000 Rwandan Franc (ibid).

<sup>49</sup> 3,000 Rwandan Franc (ibid).

<sup>50</sup> 6,000 Rwandan Franc (ibid).

<sup>51</sup> Interviews 24, 29, 30, and 34.



### 6.2.3 Treatment and Reuse or Disposal of Faecal Sludge

After the emptying and transportation of the faecal sludge, the excreta are treated, reused and/or disposed. The wastewater of the entities with decentralized treatment plants is collected and treated at a small plant located at the entity (EWSA, 2016). After treatment the effluent is discharged into the fields at the plot (Atkins, 2016), and might be used in the garden for watering or as fertilizer (Royal HaskoningDHV, 2015a). However, not all the plots have enough ground to absorb the effluent, and therefore discharge it into the drainage channels for storm water (Atkins, 2016). This effluent is more acceptable than when the effluent comes directly from the septic tanks since it is treated (*ibid*). Just a part of the decentralized treatment plants is working, due to issues of maintenance and management and the lack of standards for the monitoring of these facilities (MININFRA, 2016a). The plots that have non-functioning treatment plants dispose their sewage into the drains, open urban spaces or the swamp polluting the environment (REMA, 2009). Being connected to such networks means that people are also connected to the water pipes for which they pay a monthly fee (Atkins, 2016), however, they do not pay for the sanitation services that are provided because people are not aware of the treatment since landlords do not tell it exists at their premise (interview 28).

The collected on-site faecal sludge is not treated but disposed at a dump site, because there are no wastewater or faecal sludge treatment plants (several interviews<sup>52</sup>). Safe disposal, thus, does not exist in Rwanda (Othello Ben Dedale, 2015). Until 2013 the dump site of Kigali was in Nyanza, where between 250 and 300 m<sup>3</sup> faecal sludge was disposed every day (EWSA, 2016). Nyanza was closed in 2013 “due its nuisance towards surrounding residential areas, and due to its limited size” (Royal HaskoningDHV, 2015a, p. 47), and another landfill was opened at Nduba (EWSA, 2016). Nduba is located 25 km outside the city centre of Kigali, which is a one-hour drive uphill by truck. Here as well 250-300 m<sup>3</sup> faecal sludge is dumped daily (Othello Ben Dedale, 2015). Besides faecal sludge, solid waste from the city is dumped at Nduba (interview 24 & 32; Redampta & Dennis, personal communication, February 2, 2017). Because the dump site is that far away from the city, transportation costs are high (interview 25). Due to the lack of treatment at the decentralized systems and at the landfill, the wastewater infiltrating into the ground water pollutes the “fresh water resources as well as the soil” (Tsinda et al., 2013, p. 6940).

Since September 2015 Pivot Works has been operating a “demonstration plant” at the landfill, transforming the faecal sludge into a renewable fuel for industry (Sklar, 2016, p. 1). They receive around 100 m<sup>3</sup> faecal sludge daily (*ibid*), which means that only a small part of the collected faecal sludge is reused today (Spit et al., 2016). Pivot is the first and only one treating and reusing the solid part of the faecal sludge in Rwanda (interview 29), the effluent is not yet treated (interview 26). The fuel is produced as a replacement for coal in big industries, however, potential end-users of the faecal sludge could also be farmers, as Othello Ben Dedale (2015) suggests. [Box 3](#) gives a brief description of my fieldtrip to the demonstration plant of Pivot.

Except from the working decentralized treatment systems and the small demonstration plant of Pivot, there are no plants in Kigali treating faecal sludge or wastewater. The major part of the collected faecal sludge is dumped at a landfill infiltrating the ground and polluting the area, endangering the people and environment around.

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<sup>52</sup> Interviews 25, 26, 27, 31, and 33.

### Box 3: Dumping Site

When the pit is emptied, the team starts to clean the place, the instruments and themselves. Everyone goes into the back of the truck and the truck drives 25 km to the landfill in Nduba. It took the truck one hour uphill to reach the top of the hill where the landfill is. After passing the garbage dump for solid waste, there were two pools dug in the ground for the faecal sludge and the effluent. This truck brought the collected faecal sludge to the demonstration plant of Pivot, where the

team emptied all the barrels (around 100) manually through a filter in a small basin. At the demonstration plant the faecal sludge is treated in such a way that it can be sold as fuel for the industries (see [appendix 6](#) for a more detailed depiction of the process). After emptying the team cleaned the barrels and drove back to Kigali. The whole process of emptying one pit takes around 10 to 12 hours each day.



*“The chain is [thus] not complete, we only have collection and transportation” (interview 30). However, “a good sanitation system covers the whole chain” (interview 34).*

Two ways of possible improvement to faecal sludge collection, transportation and treatment are discussed. Some actors argue for a centralized sewage system, where everyone is connected to the sewage system which transports the faecal sludge to one or some centralized treatment plants (several interviews<sup>53</sup>). These systems are financed by the government through WASAC, in cooperation with the private sector, and by the “households and industries themselves” (MININFRA, 2016a, p. 31). However, already since 1991 the CoK is planning to construct off-site sanitation and a treatment plant for the whole city of Kigali but failing to finance such a huge project (Spit et al., 2016). As a result, CoK expects to use the landfill as it is used right now for another two years until new plans are made for the treatment plant (Atkins, 2016).

There is the belief that an urban area that is growing like Kigali should have a “big sewage system to collect all the wastewater to a centralized system” (interview 30). However, as interviewee 34 states, “when I came in Africa they said you have to eat white bread because white bread is where the white men gets his brain from. It is the same for sewage, there is this cultural bias that only water borne sewage is good, which is of course foolish and crazy”. This brings us to the other side of the discussion. “Looking at the topography of Kigali it is not easy

<sup>53</sup> Interviews 26, 27, 28, 32, and 33.

to connect all people to one sewer” (interview 28). Therefore, they argue that decentralized treatment systems for every catchment in the city is the solution (several interviews<sup>54</sup>) and that the government should focus on the improvement of on-site sanitation instead of centralized off-site sanitation (interview 29 & 34). Affordable sanitation is necessary, “you cannot offer a solution when it is not affordable to the people” (interview 28). Proponents of the smaller systems argue that it is easier to control, and recover energy, fertilizers and bricks from it (interview 29 & 32). Besides, all neighbourhoods are different and have different means to provide sanitation facilities, therefore, one centralized plan will not be the solution for all households in the city.

These solutions, being centralized or decentralized, have to complete the missing parts of the sanitation chain and improve the sanitation provision in the city.

In this part a description is given about the current situation of the sanitation facilities in Kigali. The sanitation chain of IRC is used to explain the different steps of the process, including the capture, containment, emptying, transport, treatment and reuse or disposal of the faecal sludge. At this moment, parts of the sanitation chain are missing in the provision of sanitation in Kigali. The majority of the city relies on on-site sanitation, since off-site systems rarely exist. However, not all the on-site sanitation complies with the (international) standards for improved sanitation. Septic tanks are emptied by tankers, but for the pit latrines that are not accessible by the tankers, there is just one private operator providing the emptying services. For the collected sludge there is no other way to go than the landfill, and just a small part is treated and reused, since Pivot started their demonstration plant in 2015. Treatment and reuse of the faecal sludge is thus lacking for the major part of it, making the sanitation chain incomplete and leading to disposal of almost all faecal sludge into the environment.

## 6.3 Institutional Framework

Having discussed the current situation of sanitation, the institutional framework will be addressed, in the next part, in order to draw a picture of the policy domain of sanitation in Kigali. The Rwandan institutional framework has three categories relevant for urban sanitation; the strategies, the policies and the standards that are in place.

### 6.3.1 Strategy

The basis for all policies and guidelines are depicted in the strategies. The goal of Rwanda is to change the country from a developing country into a “private sector led middle income country by 2020” by creating an economy that is knowledge-based (Abbot & Rwirahira, 2010, p. 19), in which Rwandans are healthier, more educated and more prosperous (Höhne, 2011). In order to reach that goal, the annual income per capita, the life expectancy and the urbanisation rate have to increase, while poverty has to decline (Spit et al., 2016). These goals are captured in Vision 2020, which describes the journey of Rwanda until 2020 and which is the basis for “all sector policies and strategies” (Höhne, 2011, p. 45). Incorporated in Vision 2020 are the MDGs (Abbott & Rwirahira, 2010). Although Vision 2020 dates back from 2000 it has been revised in 2012 to be in line with the

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<sup>54</sup> Interviews 28, 29, 32, and 34.

current situation (MININFRA, 2016a). Vision 2020 is divided in “series of medium-term strategies” which put the vision into practice; from 2002 until 2005 it started with the “three-year Poverty Reduction Strategy”, “followed by a five-year Economic Development and Poverty Reduction Strategy” (EDPRS I) from 2008 till 2013, and currently, from 2013 till 2018, the EDPRS II is implemented (UNDP & GoR, 2015, p. 39).

The EDPRS sets “out the country’s objectives, priorities and major policies” for that period of time (Sano, 2012, p. 5). After evaluating the achievements and challenges of EDPRS I, EDPRS II adapted to that and development continued. Concerning sanitation, the targets set in EDPRS II for sanitation are a “100% sanitation service coverage by 2017/18” (Hydrophil & Ecopsis, 2015, p. 21). For the first time, sanitation plays a key role for social and economic development, public health and poverty reduction (Spit et al., 2016). The EDPRS is build up by a couple of five-year Sector Strategic Plans (SSPs) and District Development Plans (DDPs) (MINECOFIN, 2014). The SSPs guide “ministries and agencies in elaborating their annual work plans”, while the DDPs do this for the districts balancing the national and local development priorities (ibid, p. 16).

Another subcomponent of Vision 2020 is the Master Plan for Kigali (interview 27, 30, & 32). Since Kigali did not start as a planned city but grew unregulated, the city is already established which makes it difficult to ensure sanitation (interview 30). The Master Plan has to deal with this city planning issue and is therefore a detailed description of the physical plans for the city; it includes guidelines for the development and design of Kigali (Joshi et al., 2013). An important aspect of the plan is the inclusion of the involved stakeholders due to which much attention is paid to the participation of all (ibid).

These strategies form the basis for the development of the city including the policies and standards concerning sanitation.

## 6.3.2 Policy

Besides the strategies functioning as a guidance for the development of Rwanda, there also exists a more specific document for sanitation services, the so-called National Policy and Strategy for Water Supply and Sanitation Services (2010). This document’s objective is “to ensure sustainable and affordable access to safe water supply, sanitation and waste management services for all Rwandans, as a contribution to poverty reduction, public health, economic development and environmental protection” (Mott MacDonald, 2012, p. 56). On urban sanitation four targets are included in the National Policy; an urban sanitation coverage of 100%, as mentioned in the EDPRS II; improved sanitation in “schools, health facilities and other public institutions and locations”; “develop safe, well-regulated and affordable off-site sanitation services for densely populated areas (sewerage and sludge collection, treatment and reuse/disposal)”; and “enhance storm water management to mitigate impacts on properties, infrastructure, human health and the environment” (Royal HaskoningDHV, 2015b, p. 5). Currently, a revision of this policy is done, in which there will be two separate laws for the water and sanitation sector (Atkins, 2016).

## 6.3.3 Standards

The government bases its strategies and policies concerning sanitation on the MDGs and SDGs (for more information about the MDGs and SDGs see [chapter 1](#)). Together with the strategies and policies, they form the basis for the guidelines of adequate sanitation, made by the MININFRA. Several aspects are taken into account

in order to label sanitation facilities as adequate or not, for instance, the cleanliness of the latrines, and the smell and safety of the sanitation facility (interview 25). Moreover, latrines should be easy to empty, and accessible (interview 28). Based on the guidelines from MININFRA the monitoring is done (interview 25). Besides, the indicators from the JMP are used to define the sanitation situation in the country (ibid). Like in Kampala, the coverage of sanitation depends on the definition used. In Kigali it decreases, for example, if only hygienic and safe sanitation facilities are taken into account and not hygienic and safe shared toilets. In Kigali the master plan is used as the basis for sanitation provision. However, in this document only the general ideas for the development are depicted and no detailed standards about the engineering of latrines are defined.

Much criticism arises concerning the current guidelines; the guidelines are out dated (interview 29) and do not include the lower income areas. According to interviewee 31, the existing guidelines date from 2011 and will be updated this year (2017). The National Policy on sanitation has been updated last year (2016) and forms the basis for the new standards (interview 31). Most of the existing guidelines are made for middle or higher income sanitation facilities; “the CoK defines a good toilet as a septic tank” (interview 34) and the private treatment plants that are constructed on private or commercial estates (interview 26 & 34). For the sanitation facilities constructed in lower income areas, like informal settlements, there are no standards or it is impossible to comply with the set standards (interview 26). “[The septic tank] gives another headache, because it is much more expensive and people cannot afford it. So it is a bit of jumping from a nothing or bad solution to a solution that cannot be practical or implemented” (interview 34). Therefore, included in the new standards will be low cost technologies and the obligation of having a toilet (interview 31).

As is shown, the policies and strategies in place are based on international standards and goals like the MDGs and SDGs. However, the current standards need to be updated and do not take into account sanitation for lower income areas. It is, therefore, hard if not impossible to comply with the standards set.

In this part the institutional framework including the strategies, policies and standards for the provision of adequate sanitation in Kigali are briefly explained. Although there are clear goals and visions for the development of Rwanda and specifically for sanitation in Kigali, clear standards for all sanitation facilities are lacking, making it difficult to provide adequate sanitation. In the next part the actors involved in sanitation provision in Kigali will be briefly addressed.

## 6.4 Actors

In order to reach the set targets, as has been described in the last part, and improve sanitation in Kigali, “government state institutions, non-government organizations, civil society, the private sector, decentralized entities and donors” are included in the provision of urban sanitation (EWSA, 2016, p. 2/16). In this section these actors will be addressed, including their tasks and responsibilities concerning sanitation.

## 6.4.1 Governmental Actors

The government in Rwanda is divided into two different levels; the national level and the local level. The national level of the government includes five provinces including Kigali City. The provinces consist of districts, which are divided into sectors, cells and villages (National Institute of Statistics of Rwanda [NISR], 2015). Kigali City consists of three districts, as mentioned before; Nyarugenge, Gasabo and Kicukiro (see [figure 17](#)). These districts are subdivided into 35 sectors, combining 161 cells, separated into 1176 villages (ibid). All these levels have their responsible people taking care of the sensitization and mobilization of sanitation, monitoring hygiene and advising households what they could do to improve their sanitation facilities (Höhne, 2011).

In the following section first the national governmental actors will be addressed and then the local authority.

**Figure 17: The districts of Kigali**



Source: EWSA, 2016, p. 2/2.

## National Governmental Actors

The national governmental actors that are considered to be the most important concerning sanitation are the MININFRA, REMA and RURA (Othello Ben Dedale, 2015). The sector is headed and led by the Ministry of Infrastructure (MININFRA) (ibid). Included in the tasks for MININFRA is making the policies, setting the guidelines and strategies and funding the water and sanitation sector (Mott MacDonald, 2012). The National Policy is made by the MININFRA, and although they initiated to review this policy, they do not have the means (MININFRA, 2016b), therefore RURA (addressed later) has started this review and is developing a new policy (Atkins, 2016). Besides initiating the policies and guidelines, MININFRA also monitors and evaluates the implementation of this policy and streamlines the actors involved by defining the responsibilities and roles of all actors involved (EWSA, 2016; interview 31). Concerning sanitation in Kigali, MININFRA works closely together with the City Council of Kigali to get the work done (interview 32).

Other ministries involved in sanitation provision are the Ministry of Health (MINISANTE) and the Ministry of Education (MINEDUC). MINISANTE monitors sanitation in health centres and hospitals and MINEDUC is active in school sanitation, providing educational programs and school latrines (interview 27). Both the ministries report back and are coordinated by MININFRA.

Two agencies important for urban sanitation in Kigali are REMA and RURA. The agency concerned with environmental aspects is the Rwanda Environmental Management Authority (REMA). They are the implementing agency of the Ministry of Natural Resources, and set the environmental standards taking into account the current environmental issues. Where REMA is responsible to ensure the right of Rwandan people to live in a healthy and safe environment (Othello Ben Dedale, 2015), the Rwanda Utilities Regulatory Agency (RURA) is a “multi-sector economic regulator” (USAID, 2010, p. 2). RURA regulates the standards and prices of the water and sanitation sector, to promote “fair competition”, and tries to protect the environment “through



waste disposal and byproduct treatment enforcement” (ibid). They are also responsible for the licensing of the private operators who want to cooperate in the collection of faecal sludge (Atkins, 2016).

Under supervision of MININFRA, the Rwandan Water and Sanitation Corporation (WASAC) is responsible for water and sanitation provision (interview 28 & 32). They are a semi-autonomous, private entity fully owned by the government (interview 28, 32, & 34). The current structure of the organisation exists since 2014 (Atkins, 2016). At the moment, WASAC is “in a transition phase [expected to take 5 years] to become a financially independent and autonomous utility” from the government (Spit et al., 2016, p. 18). They are mandated to provide sanitation services and are responsible for the waste management of sanitation (interview 28). WASAC is mainly focused on water supply, off-site urban sanitation and the planned treatment for faecal sludge (Atkins, 2016). Concerning sanitation this means faecal sludge management “at national level, the technical support and collaboration with the district and the municipalities on the faecal sludge management projects” (Othello Ben Dedale, 2015, p. 49). The CoK wants to make them responsible for the whole sanitation chain, including the household level and solid waste for which the CoK or the districts are responsible at the moment (interview 28 & 34). Interviewee 34 argues, that “WASAC will never succeed, they are given the task officially, so they have to do it, but we found ... that you really have to love the shit to be in this business and if you have been educated and raised in the drinking water business, people just find the shit business a ridiculous job”.

## Local Governmental Actor: CoK

At the local level there are also governmental entities involved in the provision of sanitation. The Ministry of Local Government oversees these local authorities. In Kigali the Kigali City Council or the City of Kigali (CoK) is responsible for “the management of collection, treatment, disposal of wastewater plus sludge handling infrastructures” (Umuhoza Mbatye et al., 2010, p. 23). The CoK is responsible for solid waste management and household level sanitation provision (interview 32, 33, & 34). Together with the districts, they hire private operators to do the collection and transportation of the faecal sludge (interview 28 & 32). They work together with private operators like Pivot (interview 25, 28, & 33). The landfill Nduba where Pivot is operating is under the authority of the CoK as well (Spit et al., 2016).

The national government is thus mainly involved with policy making and standards setting taking into account environmental and economic aspects. Besides they monitor and evaluate the implemented policies and define the role and task division of the actors involved. The MININFRA is the leading actor in the sector and supervises WASAC, who is responsible for the provision of water and sanitation. At local level, the CoK is responsible for the whole sanitation chain in Kigali, contracting the private sector for wastewater and faecal sludge management.

## 6.4.2 Non- Governmental Actors

Besides the governmental actors, private operators, the civil society and households have a responsibility in the provision of sanitation facilities as well.

## The Private Sector: Pivot Works

Next to WASAC as a governmental company responsible for faecal sludge management, there is only one private company active in the sector; Pivot Works (interview 26). Pivot Works initiated by people from the USA in 2015 (interview 25) in Kigali “converts human waste into renewable fuel” to replace coal as fuel for big industries, like cement factories (Pivot, 2016, p. 1). For this reason, they built a small factory and some drying beds at the landfill of Nduba to treat a small part of the collected faecal sludge (ibid). They are a profit oriented company trying to demonstrate the possibilities of transforming waste into something profitable as fuel, decreasing the operation and maintenance costs of the factory and showing a possibility for a treatment plant (interview 26). Their focus is thus not on emptying toilets but on the waste to fuel business (interview 34). However, in order to be able to produce this fuel they need faecal sludge and therefore they started, in cooperation with Water for People, emptying pit latrines and trying to improve instruments like the eVac (interview 27). Due to this, they became an important player in the emptying services, since they are the only official actor emptying pit latrines that cannot be reached or emptied by the tankers of the municipality.

## The Civil Society

During the fieldwork not so many local NGOs in sanitation were encountered and even the international NGOs were few, especially concerning urban sanitation. NGOs are more focused on rural sanitation and they are more involved in private and community sanitation, while the government is more active in public sanitation (interview 27, 31, & 32). The NGOs that are involved have different fields of expertise and different ways to tackle the problem. Some are active in giving training about hygiene or behavioural change (Othello Ben Dedale, 2015), others are more involved with the promotion of the private sector and doing research about the technical possibilities of adequate sanitation (interview 25 & 31). Besides, the NGOs are asked to review the governmental policies concerning sanitation and report to the government what is going on in the sector.

According to interviewee 34,

*“the NGOs are temporary; they should go as soon as possible. NGOs are there to start the process ... they are triggering, they are passing the message to develop but, they should never stay there. They should innovate; get partners together; make sure the government fulfils its role; create a path for the government; make sure the banks fulfil their role by providing credit; develop the private sector; and create the demand at the community level. But then they should step out. That is not what is happening in Kigali now, everyone wants to drive in a big car and it is very nice weather”.*

The non-governmental sector of sanitation provision in Kigali consists, thus, of one private operator involved in pit emptying and the reuse of treated faecal sludge, and of some NGOs involved in the sensitization, mobilization, and private and technical support of sanitation improvement. Where the government is responsible for public sanitation, the civil society is involved in the provision of private sanitation.

## Households

The governmental actors, the private sector and the civil society try to make it easier to improve sanitation in the country, however, the main responsibility lies, in the end, with the household itself; “people should be responsible for their own shit” (interview 25); they have to make sure that they have proper sanitation facilities and pay for the services needed, since it is in their first interest to have a clean home and environment to live in (several interviews<sup>55</sup>). Although the landlords are considered to be responsible for the construction of the latrines and the households themselves for the maintenance, tenants report that they are the ones taking action and make the landlords pay for the costs (Höhne, 2011).

Moreover, the households stick to the regulations of the government, “because if this was not the case you should not see Kigali clean like it is” (interview 30), and participate actively in the program and projects about faecal sludge management and sanitation provided by the government or NGOs (Othello Ben Dedale, 2015). According to Othello Ben Dedale (2015), 78% of the households does not remain indifferent when their sanitation facility is not working properly, one could say that the awareness of the advantages of a proper toilet and a clean environment is therefore quite high. However, the involvement of households in the faecal sludge management is still very low and many of the households still choose for the cheaper and riskier options of emptying, instead of choosing a safe formal way (ibid).

Although households are on the receiving end of the sanitation cycle, they are responsible for the construction, maintenance and emptying services of sanitation. It seems that the awareness about the importance of adequate sanitation is high, however, still the actions taken are cheaper and riskier than the adequate options.

There are thus several actors involved who all have different responsibilities and tasks in the provision of sanitation facilities in Kigali. The national government is responsible for the standards and policies guiding the sector. They coordinate the actors involved and divide the roles and responsibilities among them. Besides they monitor and evaluate the programs and own a company responsible for the provision of water and sanitation. They are involved in the construction of public sanitation. The main actor is MININFRA. In Kigali, the CoK manages the whole sanitation chain.

The non-governmental actors active in the provision of sanitation in Kigali are one private operator, several NGOs and the households. The private operator empties pit latrines and treats the faecal sludge in such a way that it can be reused. The NGOs construct mainly private or community toilets, they sensitize and mobilize communities and try to innovate technology in order to improve the tools available. The households are responsible for the construction, maintenance and emptying services of their own sanitation.

The task and responsibilities per actor are quite clear and well defined by the government. However, in order to make this hierarchy or system function cooperation is needed. The way they cooperate will be elaborated in the next part.

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<sup>55</sup> Interviews 25, 27, 29, and 34.

## 6.5 Cooperation

A brief description has been given of the actors involved in sanitation provision in Kigali. In this section the way they collaborate will be explored. According to Othello Ben Dedale (2015), the different actors involved in sanitation have “close relationships” since they have the same goal to reach (p. 33). There are several platforms and working groups to bring actors together in the water and sanitation sector.

### Sector Working Groups

The policies concerning the sanitation sector are developed in the Sector Working Group (SWG) WATSAN hosted by MININFRA (interview 25, 28, & 32), the Joint Sector Review (JSR) at national level, and the Joint Action Development Forums at district level (MINECOFIN, 2014). Governmental actors work together with the development partners and non-governmental actors at these platforms, discussing the development in the sector and creating a dialogue among different levels (MININFRA, 2016a). Through these platforms coordination and monitoring of the sector is done. In the SWGs all actors involved in water and sanitation meet four times a year in which the MININFRA presents a report about the status of implementation (ibid). “These forums have improved the coordination and transparency between the government and development partners” (Sano, 2012, p. 2). All activities are reported to the government through the forums, making the government aware of what is going on in the sector (interview 30). The NGOs are trying to set up a sector working group as well, in order to harmonize the process (interview 25). This working group “is a secretariat, under the MININFRA, trying to organize themselves as NGOs, so that they can have a say or word, but as a group. So that they can try to support and share experiences” (ibid).

### Steering Committee

There is also a Steering Committee to engage the different stakeholders in the process of sanitation improvement (Royal HaskoningDHV, 2015b). The Kigali City Wastewater Steering Committee, for example, has five members; MININFRA – chairing the committee –, WASAC, CoK, REMA and MINECOFIN (ibid). This committee does not solely focus on sanitation; wastewater is an important part of the improvement of sanitation as well. They meet regularly to prepare wastewater projects (ibid). To involve the people, public meetings are organized to consult about the proposed plans for improved sanitation (ibid).

### Partnerships

The policy for the water and sanitation sector in Kigali is implemented by collaborations of different governmental actors, in partnerships, led by MININFRA (MININFRA, 2016a). For instance, sanitation in schools, health facilities and at public places will be headed by MINEDUC, MINISANTE and the districts, supported technically by WASAC and MININFRA (ibid). Much of this cooperation is based on MoUs signed between two or more governmental and non-governmental parties, like NGOs with districts or Pivot with CoK (interview 25 & 28). The implementation of projects and programs that organisations have together with the districts depend on the MoUs signed (interview 28).

## Perspectives on Collaboration

The opinions about whether the involved actors work together or not, differ among the interviewees. According to several interviewees<sup>56</sup>, the governmental and non-governmental actors involved work well together due to these SWGs in which activities are coordinated. However, interviewee 29 argues that there could be more cooperation. She argues that

*“every organisation wants to score resulting in overlapping activities which could be avoided if the common goal would be more important than the individual profit of the organisations. The organisations want to show their donors, sometimes being citizens of the USA or The Netherlands, what they did with their money, this creates competition among the organisation, instead of cooperation” (translated from Dutch, interview 29).*

This leads to the construction of unnecessary fancy toilets, making the toilet better than the house people live in, the toilet will then be used for other purposes, like storage (ibid).

To conclude, cooperation is practised in several ways; sector working groups, steering committees and partnerships. However, there is some disagreement about whether there is enough collaboration or whether this should be increased. Next, the way decisions are made will be discussed.

## 6.6 Decision Making

The government makes the decisions in the process of sanitation improvement. They determine the roles of the actors involved, their responsibilities and tasks. Moreover, they decide which donors finance what sector, the Dutch donors, for instance, have been allocated to be involved in water, sanitation and food security (interview 29). However, the government is open to input from other actors in the sector, through the sector working groups or the committees. The NGOs have to present their plans and discuss with the district or ministry how their plans fit the governmental programs (interview 26, 29, & 32). After this discussion the government decides whether they will approve the plan or not (interview 32). Some plans, touching upon sensitive topics, are not approved and the NGO presenting this plan is rejected a working license for Rwanda (interview 29). Besides, the government is more interested in the projects that improve the physical structure than programs to train or sensitize communities (ibid). When the plans are implemented, the NGOs have to report their progress and performance, so the government knows what is going on (ibid). This makes the relationship between the government and the other actors close and clear; in the end it is the government who makes the decisions (interview 25 & 26).

In the decision making process the government is the main actors. They decide who participates, where and with what activities. The other actors have to report the process to the government so the government knows what is going on.

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<sup>56</sup> Interviews 27, 28, 30, 32, and 33.

## 6.7 Resources

What actors are involved and how they collaborate and make decisions also depends on the resources an actor has. The actors with the most influence or power in the process, are in most cases also the actors that have the most resources available. Although financial resources play a big role in this determination, political legitimacy, and access to knowledge and research can also play a role in the amount of influence and power an actor has. In this part the resource structures are briefly explained.

### 6.7.1 Financial Resources

The implementation of WASH activities depends strongly on the amount of funding available for the sector. The income of the government to provide the budget for development is partly (60%) based on the tax paid by the tax payers and partly (40%) based on foreign aid (interview 34).

#### Donors

Although Rwanda has been growing economically over the past years, the financial means are still lacking to provide sanitation facilities that comply with the international standards, and make the actors dependent on foreign aid from international donors (Aid Environment & Panteia, 2015). The biggest donors, according to Aid Environment and Panteia (2015) – World Bank, AfDB, DfID, and the EU – together contribute around 72% “of budgetary grants for the budget” of the government (p. 21).

NGOs do not receive any funding from the government of Rwanda (interview 27 & 30). They have to find donors to support their programs and projects financially. These donations might come from foreign governments, international NGOs, other organisations or companies, or private funding.

#### Budget Allocation: Sanitation Share

A big share of the development money of the government goes to housing, roads and some drinking water, but not to sanitation (interview 34). This is because the Ministry of Finance and Economic Planning (MINECOFIN) has decided that the priority of development of Rwanda lies with other sectors (Aid Environment & Panteia, 2015). According to interviewee 34, the prioritization of MINECOFIN is based on the idea that “roads are flashy, you can show it ... and sanitation is not sexy, it is in the houses”. In order to achieve the MDGs and SDGs, the government of Rwanda has to allocate 0.9% of the national GDP to the sanitation sector alone, however, this was just 0.47% of the GDP in the year 2011/12 (Sano, 2012). “On the other side, there is more and more money available to develop Kigali Heights; the very expensive, high buildings. But where does that money come from?” (translated from Dutch, interview 29).

Moreover, the allocation of the budget over the water and the sanitation sector is out of balance. Water is seen as more important and thus needs more budget, meaning that there is little budget allocated to sanitation (interview 27). Moreover, most of the budget allocated to sanitation is used for the construction of sanitation facilities, systems and the landfills, and just a very small part (0.4% of the budget for water and sanitation) is put aside for workshops and trainings, sensitization and mobilization (MININFRA, 2016a).



The government of Rwanda allocates its budget to several institutions. Concerning institutional sanitation, like facilities in hospitals, at public places or in schools, for instance, the MINISANTE, MINALOC, districts, and MINEDUC are liable for the financial support of the construction and maintenance of this sanitation (MININFRA, 2016a). Part of these facilities are outsourced to the private sector, but still under supervision of the respective institution (ibid). In Kigali, the CoK is allocated part of the national governmental budget, besides, MININFRA also supports the CoK to improve sanitation facilities in the city (interview 32).

## Service Fees

Besides the government and the international donors, the “households, institutions, industries and trade” remain responsible for the payment of their own sanitation facilities (MININFRA, 2016a, p. 30). In order to help the individual sector, the government finances “sanitation marketing, regulation and standards, technical assistance and training for small enterprises and the informal construction sector”, so that the construction of the sanitation facilities is made more accessible and according to adequate standards (ibid). However, according to Höhne, the government does not provide such “financial or technical support” for the users and households themselves (2011, p. 55) and most of the house owners “felt left alone by the government” since there were no “loans for domestic improvements” they could afford, leading to bad or non-existent sanitation facilities for some households (ibid, p. 39).

Financial resources consist, thus, of governmental money provided by the tax payers and international community, the international donors and NGOs. However, the budget allocated to sanitation is not enough to provide the sanitation facilities necessary. Other sectors, like water, roads and housing have a higher priority, according to MINECOFIN, and receive therefore more budget. Besides, the households are expected to pay for the construction, maintenance and emptying services of their own latrines.

### 6.7.2 Non-Material Resources

Alongside the financial resources that determine the influence and power of an actor are the non-material resources like political legitimacy, and knowledge and research. In the case of Kigali, the CoK has gained political legitimacy by the national government. They can enforce the rules and guidelines concerning sanitation (interview 34). Although they are responsible for the waste management in the city, they are still supervised by the MININFRA.

Some actors have invested to map the urban sanitation problem to see where the gaps are (interview 27), but besides that there is not so much research done about sanitation in Kigali (interview 26 & 28). If the gaps are defined, it makes it easier to come up with suitable solutions (interview 26). It are mainly the international NGOs and private sector that bring in research and knowledge about the sector (interview 28). Pivot, for example, is doing its own research in order to improve the tools for the emptying of the latrines and for the treatment plant to turn waste into fuel (interview 26). Also the University of Rwanda is involved in research, since they do not have the budget to support the sanitation sector financially, they provide staff participating in research (interview 32). Although research is lacking, most of the actors acknowledge that it is necessary in order to improve the sanitation situation in the city (interview 28).

In this section some of the resources used by the actors are briefly addressed. There are three kinds of resources discussed; financial resources mainly provided by the government, the international community and the taxpayers and households; political legitimacy; and knowledge and research. These resources determine the power and influence actors have in the process of sanitation provision.

In this chapter the situation concerning sanitation provision in Kigali is elaborated. The current sanitation situation is briefly explained using the sanitation chain. Besides, the institutional framework, the actors involved, the cooperation, decision making and resources of the actors are described in order to sketch a picture of the way sanitation provision is governed. In the following part this information will be analysed using the theoretical framework discussed earlier (see [chapter 2](#)).

## 7 Analysis of Kigali

In the last part, the sanitation situation, the involved actors, the ways of collaboration and decision making, and the resources in Kigali concerning urban sanitation have been described. In this section, the information will be connected to the theoretical framework provided earlier (see [chapter 2](#)). This will be done, first, by defining what kind of governance mode is practised in urban sanitation in Kigali, and second, by elaborating on the content of the policy arrangement using the theoretical framework of the Modernised Mixture approach.

### 7.1 Governance Modes

There are four possible governance modes; hierarchical governance, closed co-governance, open co-governance, and self governance. These governance modes are defined along the lines of three dimensions; actors and their coalitions, resources determining the power and influence of the actors, and the rules of the game (see [chapter 2](#) for a more extensive explanation). An analysis of the three dimensions will be given concerning the governance of sanitation in Kigali.

#### 7.1.1 Actors and Coalitions

In Kigali both governmental and non-governmental actors are involved in the provisioning of sanitation. The coalitions mainly exist of small groups of actors which share their information and experiences through working groups, steering committees and partnerships. The dominant perspective is mainly supported by the governmental actors, and although some non-governmental actors are opposite this perspective, all actors follow the course of the government to achieve improved sanitation.

There are just a few actors involved in the provisioning of urban sanitation in Kigali and the governmental actors are the most dominant ones. The coalitions are small and formed by governmental and non-governmental actors. Due to this select mixed group of actors, the way sanitation is governed in Kigali fits the closed co-governance mode on the dimension of actors and their coalitions. However, it touches the hierarchical governance mode as well, due to the dominant nature of the governmental actors in the process.

#### 7.1.2 Resources, Power and Influence

Three types of resources are discussed in Kigali; the financial resources, political legitimacy, and knowledge and research. Since sanitation is not the priority of the government, the share of the national budget allocated to the governmental actors active in sanitation is small and not enough to provide the sanitation facilities necessary. MINECOFIN decides to what sector the money is allocated and MININFRA allocates this budget to the involved governmental actors in the sanitation sector. Most of the money used for sanitation provision is donated by the international community or paid by the households through taxes or service fees. Both the governmental actors and the non-governmental actors involved in sanitation depend on the funding from donors. The government decides where the donated money has to go, since they decide which donor finances which sector.

Besides the financial means, there is also political legitimacy, and knowledge and research as resources of actors. Political legitimacy in sanitation provision in Kigali is given to the local authority, CoK, by the national government. In addition, the national government themselves have still quite some political legitimacy concerning sanitation provision in Kigali. They supervise the CoK, and have a leading role in the process. Knowledge and research is somewhat lacking in the field of sanitation. Only some universities, international NGOs and Pivot have done or are doing research concerning sanitation in Kigali. Due to this, all actors depend on the little information that is available about the topic and have to work together in order to achieve the goals set.

Since none of the actors can achieve the intended goals without working together, they depend on each other's resources, which creates a power division between the governmental and the non-government actors. However, it is the government who makes the decisions about the allocation of the resources and determines the direction of the process. Therefore, it can be argued that the power and the influence lay mainly with the governmental actors, and just a little with the non-governmental actors.

The resources are, thus, mainly controlled by governmental actors. The governmental actors determine where the financial resources go and they have the political legitimacy. The non-governmental actors are provided with these financial means and have the knowledge and research to share with the governmental actors. This makes the actors dependent on each other, especially the non-governmental actors on the governmental actors. The governmental actors are therefore the most powerful and influential actors in the sector. This suggests, that on the dimension of resources, power and influence, the governance of sanitation in Kigali can be connected to the hierarchical governance mode.

### 7.1.3 Rules of the Game

The rules of the game of sanitation in Kigali form the procedures of decision making and the implementation of the WASH activities, and they shape the behaviour and roles of the actors. There are two rules defined in this analysis; the access rule and the responsibility rule. In Kigali it is the government who decides what actors can participate in the sanitation sector or not. As long as the plans fit with the plan of the government, any organisation or company is welcome to be involved. The responsibilities are also determined by the government. The different actors involved have different responsibilities and tasks. The government makes, monitors and evaluates the policies, they streamline and coordinate the actors and they are involved in some construction projects. The non-governmental actors are active in the construction, maintenance and emptying of the latrines in communities and households. Besides, they sensitize and mobilize the communities and conduct some research.

The governmental actors are, thus, the leading actors, while the other actors follow and fit the governmental plans. The government assigns where the budget goes, who funds what sector and what actors are active in what activities. The accessibility to participate in the process is, thus, determined by the governmental actors. The non-governmental actors cannot act autonomous since they have to report everything to the government, who makes sure that the assigned responsibilities are met by the actors. This increases the feeling of competition by the organisations, which results in the overlap of activities and lacking communication. It implies that on the dimension of rules of the game, the way of sanitation is governed in Kigali fits the hierarchical governance mode best.

**Table 5: Governance modes Kigali**

Ideal-typical governance arrangements				
	Hierarchical	Closed co-	Open co-	Self
Actors	Mainly governmental actors	Select mixed group of actors	Large mixed group of actors	Mainly non-governmental actors
Power	With governmental coercion	Pooled	Diffused	With non-governmental
Rules	Governmental coercion	Restricted cooperation	Flexible collaboration	Non-governmental forerunning

In [table 5](#) the characteristics of the governance of sanitation in Kigali are connected to the theory of the governance modes. As has been explained, the actors and their coalitions fit best with the closed co-governance mode, slightly touching upon the hierarchical governance mode. This is because there is a select mixed group of actors participating in the provision of sanitation, but the governmental actors are the dominant actors. The resources are mainly controlled by the governmental actors and just a little by the non-governmental actors. Due to this the governmental actors are the most powerful and influential in the sector, which suggests that the hierarchical governance modes fits best in this dimension. The rules of the game are linked to the hierarchical governance mode as well, since the governmental actors decide who participates, what the responsibilities and tasks are, and how the process will go. The way sanitation is governed in Kigali is thus mainly hierarchical governance with a little mix of closed co-governance due to the involved actors.

## 7.2 Modernised Mixture approach

The organisational part of the policy arrangement of urban sanitation is analysed and defined. In the next section the content of the arrangement will be discussed using the MMA. Although the policy discourse of the policy arrangement consists of two levels, only the second level, about the issue at stake, will be addressed here. Concerning this analysis, the issue at stake is urban sanitation provision in Kigali.

There are four variables defining whether the sanitation system in place is a conventional system, alternative system, a MMA or another combination (see [table 3](#) for all the 16 possibilities). The variables are organisation, end-user participation, sanitary flows, and spatial-technical (see [chapter 2](#) for a more extensive explanation). In this part, the current sanitation systems in Kigali will be discussed using these four variables forming the fourth dimension of the policy arrangement; the policy discourse.

### 7.2.1 Organisation

The organisational variable is about what actor(s) determine the tasks and roles of the actors involved in the provisioning of sanitation in Kigali. This variable overlaps with the governance mode discussed earlier. In Kigali both governmental and non-governmental actors are involved in the provision of sanitation. However, there

are just a few actors involved from which the governmental actors are the most dominant. The governmental actors are the leading actors, while the other actors follow and fit the governmental plans. The governmental actors assign where the budget goes, who funds what sector and what actors are active in what activities. It are the governmental actors that decide what actors can participate and what not. The governmental actors, thus, assign the different tasks to the actors involved which implies that the structure of sanitation provision in Kigali scores 1 on the scale of the organisation variable (see [section 2.3.1](#)) and that the organisation is quite centralized.

## 7.2.2 End-User Participation

The variable of end-user participation analyses which actors execute and implement the different tasks and what the role of the households is in the provisioning of sanitation. This has also been discussed in the analysis of the governance modes and thus this variable overlaps partly with the governance modes as well. In Kigali, the government makes, monitors, enforces and evaluates the policies, they streamline and coordinate the actors and they are involved with some construction projects. The non-governmental actors are active in the construction, maintenance and emptying of the latrines in communities and households. Besides, they sensitize and mobilize the communities and conduct research on sanitation provision. The households are on the receiving end of the sanitation cycle, but they are still responsible for the construction, maintenance and emptying of their sanitation, and they have to pay for the services provided through taxes or service fees. Due to this, the end-user participation in Kigali complies most with level 3 of the scale of the variable.

## 7.2.3 Sanitary Flows

The sanitary flows tells something about how the waste(water) is collected and treated. In Kigali a sewage system is non-existent. Only some apartment buildings have decentralized systems. In these systems all wastewater from the households is collected, transported and treated at the intended treatment plant nearby. Only storm water is not included in these flows. Therefore, the decentralized treatment systems score point 2 at the scale.

All the water in the city – greywater and storm water – drain into the drainage channels and flow to the wetlands surrounding the neighbourhoods. Only a part of the faecal sludge – from septic tanks and the one pit Pivot empties daily – is brought to Nduba dumping site where it is either dumped or treated. This implies that there are two wastewater flows collected in Kigali; the storm water and greywater together go to the wetlands and some of the black water is treated or dumped. Here as well point 2 on the scale is most applicable for Kigali.

## 7.2.4 Spatial-Technical

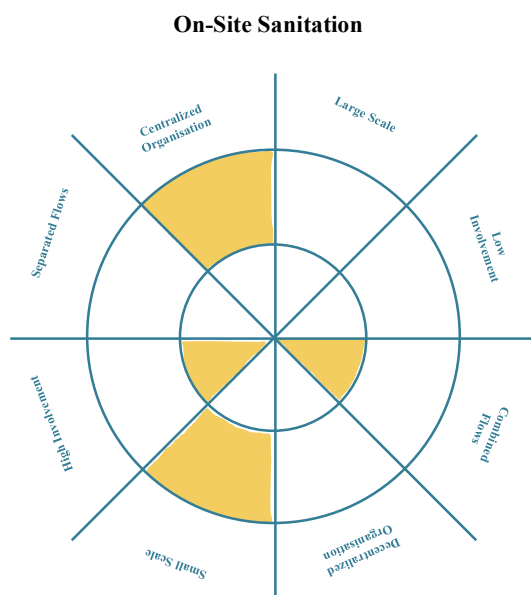
The spatial-technical variable analyses the coverage of the sanitation infrastructure and the treatment capacity. Since the decentralized sanitation system only collects and treats the waste of one apartment building, this system scores point 4 at the scale. Moreover, the rest of the city relies on on-site sanitation, which also covers only a household or a cluster of houses (point 4).

The treatment capacity is also point 4 at the scale. Every day Pivot empties one pit, which is brought to the treatment plant at the dumping site. Other trucks, owned by the CoK, as well dump their faecal matter at the



dumping place and some at Pivot as well. The transportation and the treatment of the faecal sludge in Kigali only covers a household or a cluster of houses, and therefore, point 4 at the spatial-technical scale variable. As mentioned above, the decentralized systems from the apartment buildings have their own treatment plant and therefore the treatment capacity is also a cluster of houses, and thus point 4.

**Figure 18: Sanitation system in Kigali using the variables of the MMA**



In [figure 18](#) the characteristics of the sanitation systems in Kigali are connected to the theory of the Modernised Mixture approach. As has been explained above, the organisation of the sanitation system is centralized, the end-user participation quite high, there are two sanitary flows, and the spatial-technical variable is small.

## 7.3 Combining the Theories

The analysis of the MMA can be connected to the 16 possible combinations explained in [chapter 2](#). On all four axes the analysis for sanitation is clear, due to which only combination 6 reflects the sanitation system present in Kigali. Combination 6 is a MMA that is not connected to a governance mode (see [table 3](#)). Analysing the way of governance of urban sanitation in Kigali showed that it complies mainly with the hierarchical governance mode slightly mixed with the closed co-governance mode. Since it was argued in the theoretical chapter that a hierarchical and closed co-governance mode would most probably implement combination 1 to 4, this result contradicts the expectations; the way of governance does not match the sanitation system present. The difference lays with the end-user participation; on the one hand, it is high in on-site sanitation since the households have to operate and maintain their sanitation facility themselves, and on the other hand, the way of governance does not allow for the inclusion of actors and stakeholders. Moreover, some governmental actors are striving for a centralized large scale sewage system serving the whole city. Since this would have centralized organisation and

low end-user participation it would comply with the way of governance at the moment. At the same time, there are other actors arguing against a large scale system and in favour of small scale systems with inclusion of the end-users. This fits better with the current sanitation system. Since a centralized large scale sewage system is not the best system to be implemented in a city with such a topography and climate, it would be recommended to focus on the improvement of on-site sanitation in which high involvement of the end-users is necessary. Therefore, transforming the way of governance by increasing the participation of actors and stakeholders might be beneficial for the improvement of the sanitation situation in the city.

## 7.4 Role of the Government

So far, the analysis has not focused specifically on the role of the governmental actors in the provisioning of urban sanitation, this will, therefore, be discussed in the following part.

In Kigali the governmental actors work together with the non-government actors in order to improve sanitation in the city. The governmental actors are part of the supporting coalition, and do not appreciate challenging coalitions, due to this, the other actors follow and fit the governmental plans.

The governmental actors have financial means and political legitimacy used to express their power and influence. Sanitation is not a priority of the government and thus a small part of the national budget is allocated to the governmental actors in the sector. Moreover, the money donated by the international community is also allocated by governmental actors to the different sectors. Since there is little money available for the sanitation sector from the governmental actors, the sector depends on the money provided by donors. This makes the governmental actors in the sanitation sector dependent on the non-governmental actors. Besides the financial dependency, the governmental actors also depend on the non-governmental actors because of their knowledge and research, since most research is done by the non-governmental actors. Political legitimacy lies completely with the governmental actors. Due to this division of resources, the actors depend on each other and are forced to work together. However, it are the governmental actors that make the decisions about the budget allocation and the direction of the process. Due to which most of the power and influence lay with the governmental actors.

The responsibilities of the governmental actors, as explained before, are focused on the policies and regulations concerning sanitation, and they streamline, coordinate and control the process and actors involved in the sector. Moreover, they decide who can participate and what the task and role division is of all actors involved.

In short, although the governmental actors work together with the non-governmental actors, they lead and control the whole process.







## 8 Comparison

Based on the results from the analyses done on Kampala and Kigali, this chapter will compare the two cities concerning their way of governing the provision of urban sanitation and the role of the government in it. First the results of the dimensions of the governance mode will be compared, after which the comparison for the MMA analyses follows.

### 8.1 The Governance Modes

The theory of the governance mode distinguishes three dimensions; actors and their coalitions; resources determining the power and influence of the actors; and the rules of the game. The results found for every dimension will be compared.

Although in both cities governmental as well as non-governmental actors participate and work together in coalitions, in Kampala an unlimited amount of actors is involved, while in Kigali just a few are participating. Besides, the governmental actors are quite dominant in Kigali and have a leading role in the process.

The governmental actors have, in both cities, financial resources and political legitimacy and the non-governmental actors have financial resources and knowledge and research. Due to this the actors depend on each other. However, in Kigali the non-governmental actors depend more on the governmental actors than the other way around. This is because the resources are mainly controlled by the governmental actors; they determine, for example, where the financial means are allocated to. The non-governmental actors are provided with these financial means. In Kampala all actors control the resources, however, the governmental actors make the final decision and determine, therefore, the outcome of the process.

The biggest difference between the two cities is on the rules of the game dimension of the policy arrangement approach. In Kampala the governmental actors have a leading role since they streamline and coordinate the actors and the process. However, they do not decide what actors can participate and what tasks the actors should do. The tasks are executed by several actors involved and the actors work together in a flexible way. In Kigali the governmental actors have a leading role and decide what actors can participate and what the task division is. The non-governmental actors follow and fit the governmental plans.

In [table 6](#) the results of the governance modes on Kampala and Kigali are presented together.

**Table 6: Governance modes Kampala and Kigali**

Ideal-typical governance arrangements				
	Hierarchical	Closed co-	Open co-	Self
Actors	Mainly governmental actors	Select mixed group of actors	Large mixed group of actors	Mainly non-governmental actors
Power	With governmental actors	Pooled	Diffused	With non-government
Rules	Governmental coercion	Restricted cooperation	Flexible collaboration	Non-governmental forerunning

Kampala

Kigali



Due to the controlled way of governing the governmental actors in Kigali are able to enforce the set policy, rules and regulations. This means that the rules and standards set for urban sanitation have to be applied, otherwise the people will experience the consequences of the enforcement. As a result, people take action and make sure that their sanitation complies with the rules. Meanwhile, the low amount of actors involved in sanitation provision in Kigali and the leading role of the governmental actors in the decision making, result in a fast decision making process compared to Kampala. The strong enforcement and the fast decision making increase the action that is taken to implement sanitation and improve the sanitation situation in the city. But, the strict enforcement and fast decision making process in Kigali leave less room for different perspectives and opinions on the issues; only the projects that fit the governmental plans are implemented and little other initiatives are taken. This might cause a one-sided view on the problem and thus on the possible solutions provided. In the end, the solutions brought forward might be less effective than when different views and opinions are consulted and listened to. Moreover, enforcement of the rules is maybe not the best incentive for the implementation of sanitation. Creating awareness and sensitization will motivate people probably more, since then they are aware of the consequences and will therefore keep the toilets clean or implement sanitation that is even better than the set standards. The controlled way of governing the process by the governmental actors in Kigali, is thus not necessary the most effective.

In Kampala the way of governance complies most with the open co-governance mode in which the governmental actors only streamline and lead the process. This means that the process is open to all actors who want to participate and thus more initiatives are taken to improve the sanitation situation. In this way, the process might take longer than in Kigali but the solutions brought forward include several perspectives and might therefore be more effective in the long run.

One way of governing is not necessarily better than the other; the strong enforcement and fast decision making in Kigali increase the actions taken in the process, but also diminish the inclusion of actors and stakeholders; the open process and room for initiatives in Kampala include the different perspectives on the issue increasing the probability of the projects to succeed, however, the lacking enforcement leads to deterioration or inexistence of improved sanitation facilities. The way of governance does, thus, influence the way sanitation is provided in the cities, one is not necessarily better than the other, but features of both help to improve the sanitation situation in the cities.

## 8.2 The Modernised Mixture approach

Besides the organisational part of the policy arrangement, the content of the arrangement has been discussed as well for both cases individually. In this part the different variables of the MMA will be compared for Kampala and Kigali.

The organisational variable of the MMA is about the actor(s) who determine the tasks and roles of the actors involved. As explained before, in Kampala participation of the process of sanitation provision is accessible for all who want to be involved. However, the KCCA coordinates and streamlines this process and has the final say in the decisions made. In Kigali the participation, task and role division is decided by the governmental actors. Due to this, the organisation in Kigali is centralized, while it is quite decentralized in Kampala, but also there the governmental actors have a leading role.

The execution and implementation of the tasks and the role of the households is quite similar in both cities. The governmental actors make, monitor, enforce and evaluate the policies, they streamline and coordinate the process and actors involved. The non-governmental actors are more involved at community level, constructing, maintaining, and emptying the latrines. Besides, they sensitize and mobilize the communities and conduct research. When talking about on-site sanitation, the households are in both cases responsible for the construction, maintenance and emptying of their sanitation, and they have to pay for the services provided. The household participation in off-site sanitation, only existing in Kampala, is different. In that case the households only have to pay for the services. The end-user participation is therefore in both cities for on-site sanitation quite high, and low in the case of off-site sanitation in Kampala.

In both cities there is a lack of infrastructure separating sanitary flows. In Kampala off-site sanitation is transported via pipelines to the treatment plant, while on-site sanitation makes the same journey in trucks. Storm water and greywater flow down into the several channels, which end up at the treatment plant(s) or in Lake Victoria. Domestic water as well as storm water is collected and treated at the few treatment plants that exist in Kampala. Kampala has, thus, one sanitary flow. In Kigali decentralized sanitation systems exist. The wastewater from these buildings flow together to the local plant where it is supposed to be treated. Storm water is not included in this process. The on-site sanitation of the city is transported by trucks and dumped or treated at a dumping site. Greywater and storm water drain into the channels and flow in the wetlands. In Kigali there are thus two wastewater flows collected; storm water and greywater together, and black water. Therefore, Kigali has combined sanitary flows, as well as Kampala.

For the spatial-technical variable from the MMA there is also a difference between the off-site and on-site sanitation. The off-site sanitation in Kampala covers certain parts of the Central division which coincides with some communities or neighbourhoods. The decentralized sanitation systems in Kigali are only covering an apartment building or a cluster of houses. On-site sanitation in both cities is implemented for households. All these sanitation systems are thus small scale, while off-site sanitation in Kampala is covering a bigger area. The treatment capacity is something different than the coverage area of the sanitation systems, which can also be seen by the results from the two cases. On the one hand, in Kampala both off-site and on-site sanitation are brought to a few treatment plants, which cannot deal with the daily produced faecal sludge. On the other hand, in Kigali the decentralized sanitation is treated at a small plant only including the apartment building or cluster of houses and the rest of the collected faecal sludge is dumped of which a small part is treated. The treatment capacity in Kampala is thus large scale and in Kigali small scale.

In [figure 19](#) the results of the MMA on Kampala and Kigali are presented together.

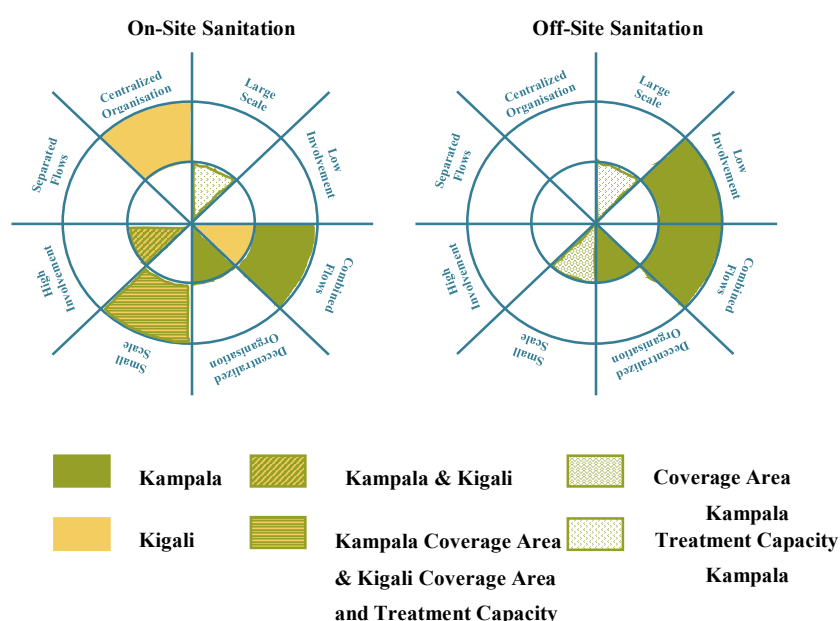
Kampala and Kigali are only comparable on on-site sanitation since Kigali does not have centralized off-site sanitation. The main difference for on-site sanitation can be seen on the organisational variable, in other words, who determines the tasks and roles of the actors involved. In Kampala this structure is decentralized and in Kigali it is centralized. This confirms the results found in the analysis of the governance modes; where the governmental actors in Kigali control the process, the governmental actors in Kampala streamline it. It can, thus, be argued that the way of governance does not necessarily influence the other aspects of the sanitation system implemented. In both cases, the on-site sanitation systems have high end-user involvement, a combined sanitary flow, and depending on the coverage area and treatment capacity a small or a large scale system. The analysis of

the MMA in Kampala and Kigali shows, therefore, that it is possible to have the same sanitation system regardless of who determines the tasks and roles of the actors involved. This confirms the assumption on which the MMA is based.

Kigali's way of governing on-site sanitation suggests that a conventional sanitation system is most likely to be implemented since it covers a large area, it is easy to control since just a few actors are responsible and all the water waste flows are combined and transported to the same place, these systems will most likely not collapse due to misbehaviour of one end-user, and it may lead to economies of scale. Although this is a plan discussed by the governmental actors these kind of systems might not be socially, economically and environmentally sustainable in the long run. An alternative sanitation system could be an answer to the unsustainability of the conventional system, but also these systems have their disadvantages (see [chapter 2](#)). A MMA, however, combines the best features of the two perspectives and by doing so it creates a better fit between the different sanitation options that are possible and the socioeconomic, ecological, and technological circumstances, providing more adequate solutions to the current sanitation problems in urban areas. It is, thus, socially, economically and environmentally most sustainable to implement a MMA. Since both Kampala and Kigali have MMA systems implemented both cities are on the right track towards sustainable sanitation systems. However, this contradicts with the governance mode practised in Kigali; Kigali's way of governing is lacking the inclusion of actors and stakeholders involved in the sector, including the end-users. Since it has been argued that the most sustainable sanitation solution is a MMA, transforming the way of governance by increasing the participation of actors and stakeholders in the decision-making process and discussions on the possible solutions might be beneficial for the improvement of the sanitation situation in the city.

However, in the last part it is stated that implementing a MMA is most sustainable socially, economically and environmentally. However, just implementing MMA's does not make a sanitation system adequate. The MMA, as explained in [chapter 2](#), has therefore defined three criteria to determine whether the MMA systems are adequate sanitation solutions or not. The sanitation systems of Kampala and Kigali will be assessed along these lines in the following section.

**Figure 19: On-site and off-site sanitation systems in Kampala and Kigali using the variables of the MMA**



## 8.3 The Three Criteria for Adequate Sanitation

Since the content of the policy arrangement is analysed using the MMA, the outcome will be discussed using the three criteria for adequate sanitation of the MMA – sustainability, accessibility and flexibility (see [section 2.3.3](#)).

### 8.3.1 Sustainability

Included in the sustainability criterion of the MMA are the ecological sustainability and institutional sustainability.

#### Ecological Sustainability

Ecological sustainability says something about the amount of waste that needs final disposal and the inputs, like water and energy, in order to keep the process running. In both the cities, most of the faecal sludge is not collected and treated and therefore disposed in the ground, where it pollutes the groundwater and soil. In Kampala the Lubigi treatment plant deals with the faecal matter that is collected and transported. The solid part of the faecal sludge is transformed into a fertilizer for the farmers and is thus reused, the liquid part ends up in the wetlands of Kampala where the last step of the purification takes place. Thus, from the treated faecal matter only the liquid part is disposed in the wetlands. This would not be a problem, if there were no people living around these wetlands and using the water for daily practises. This means that the not-yet-fully purified liquid of the faecal sludge ends up in the households and might cause diseases in these neighbourhoods. Besides, the Lubigi treatment plant and the off-site sanitation system are quite water and energy intensive, and consume much to keep the process running.

In Kigali the story is a bit different, since there is no off-site sanitation or treatment plant that has the size of the Lubigi treatment plant. As mentioned before, most of the on-site sanitation stays in the pits and is never removed, polluting the groundwater and soil. The content of the few pits that are emptied and the content of the septic tanks are transported to a dumping site where part of it is dumped and another part is treated. The solid part of the faecal matter that is treated is reused as fuel for the industry, however, the liquid part is disposed at the dumping site. The small treatment plant, in contrast to the treatment plant of Lubigi, does not need so much input to keep the process going, and is therefore more ecologically sustainable than the treatment plant in Kampala.

Steps are made to reduce the amount of waste that needs final disposal in both cities; some parts of the faecal sludge are reused; and the inputs to keep the process going are increasing. Therefore, the current sanitation systems cannot be considered ecologically sustainable, but progress is seen.

#### Institutional Sustainability

Whether the sanitation infrastructure fits the current socio-political and cultural situation in the society is referred to when talking about institutional sustainability. Applying this criterion to the situation of Kigali, it can be argued that the implemented sanitation infrastructures do not fit all the socio-political and cultural situations. In case of the replacement of the informal



A new neighbourhood in Kigali

settlements in order to build new neighbourhoods or commercial buildings, it could be argued that it is the other way around; the socio-political and cultural situations have to make place for the sanitation infrastructure implemented. This also happens in Kampala but on a smaller scale, and in most cases a solution for the existing informal settlements is explored.

Meanwhile, both cities have off-site sanitation systems as goal for the majority of the city. This is not only difficult considering the topography of the two cities, but also when the socio-political and cultural situations are taken into account; informal settlements are not constructed for an off-site sanitation system and will probably function best with on-site systems. To make the sanitation systems in Kampala and Kigali institutional sustainable the two should focus more on the on-site sanitation options instead of the capital intensive off-site structures.

Institutional sustainability of the sanitation systems is a bit different in Kampala and Kigali. While Kampala tries to adapt its plans to the different neighbourhoods, in Kigali there is one master plan for the city and all neighbourhoods that do not fit that plan have to be replaced by structures that do fit the goals. Besides, both cities focus on large scale infrastructures instead of improving the on-site sanitation in the neighbourhoods. Institutional sustainability is therefore not so much present in both cities.

### 8.3.2 Accessibility

The accessibility of sanitation facilities differs per group. The richer areas and the commercial, industrial and institutional areas are all provided with improved sanitation that is in most of the cases well maintained, clean and safe. The people living in the informal settlements, however, have to defecate on less adequate sanitation facilities that are not always well maintained, clean and safe. In Kigali these places are even removed and the people living in the areas have no place to go and thus to defecate. Besides, public toilets are rare, not clean and not enough to serve the whole population of the two cities. Since the population is growing and urbanization is rapid, the need for more public or other kind of latrines increases. Moreover, the toilets are sometimes difficult to access if you cannot walk (so well). Latrines are constructed at narrow places in between houses or at a higher level, in order to prevent the rainwater from draining the faecal matter into the streets. Especially for elderly and disabled people it is hard to access these toilets, and they are forced to defecate in the open or in a bucket near



Accessibility of toilets

their house. Also the security of the informal settlements influences the accessibility of toilets. Since it might be dangerous for women to walk during the night, for example, to the toilet, they have to defecate in a bucket in the house or in the open near the house. The lack of privacy also reduces the accessibility for women, because they have to deal with menstrual issues once a month, and not all latrines are constructed with a door that can be closed.

The accessibility to sanitation facilities is thus far from perfect in both Kampala and Kigali and much has to be done to improve it.

### 8.3.3 Flexibility, Resilience and Robustness

The last criteria of the MMA that is used to determine whether the sanitation systems implemented in Kampala and Kigali are adequate is the flexibility, resilience and robustness of the system in order to adapt to the current situation, in the future and during times of instability. Three aspects are mentioned in this criterion that can change the situation; climatic, political and economic changes. Both the cities have dry seasons and rainy seasons during the year. This influences the life in the cities and also the functioning of the infrastructures. In rainy season, the rain increases the water level, which lifts the faecal sludge from the small channels and the latrines and spreads it over the area. As a consequence, the informal settlements, mainly located in the valleys of the cities, are flooded by this mixture of rain, faecal sludge, waste and dirt and diseases are spread.



An informal settlement in Kigali after rain

Politically it depends on the governmental actors how the process will be structured. The policies in place, for example, influence the way sanitation is organised. When it becomes more complicated in Kampala to participate as a private operator, less initiatives will be taken to fill the gaps in order to provide adequate sanitation. This can be seen in Kigali, where few actors engage due to the strict rules of participation. Besides, the systems that are in place in the two cities, need financial investment to keep running, especially the capital intensive treatment plants like Lubigi. As soon as a new government comes in office, sanitation might decrease on the list of priorities and the treatment plant might be neglected, due to a lack of money. The current sanitation systems are therefore very dependent on the financial support from the government and the international community; the more stable a country is, the more money will be invested in that country and thus the better the sanitation systems can function.



This last also depends on the economic situation of the country. When the economy is growing, more money is available to invest in sanitation provision. Moreover, when more people are able to earn money, the households are also able to pay for the emptying services or the construction of improved latrines. The economic changes influence, thus, the sanitation systems in both cities.

So, the sanitation systems in Kampala and Kigali depend on the climatic, political and economic situation of the country and city and are therefore not so flexible, resilient and robust.

Concluding from the comparison above, much has to be done in Kampala and Kigali in order to comply with the three criteria for adequate sanitation systems of the MMA. Both the current systems lack ecological and institutional sustainability, the latrines are not accessible for all people, and the systems depend on the climatic, political and economic situation of the country. It can therefore be concluded, that following the criteria of the MMA, the sanitation is inadequate in both cities.

## 8.4 The Role of the Government

Except from the difference in governance mode and sanitation system between Kampala and Kigali, the role of the governmental actors in urban sanitation provision is quite different as well. In both cities the governmental actors have to work together with the non-governmental actors. Where the governmental actors streamline and coordinate the process in Kampala, the governmental actors in Kigali control it. In both cases just a small part of the national budget is allocated to the sanitation sector and the research is done by the non-governmental actors. This makes the governmental actors active in the sector dependent on the non-governmental actors. However, in Kigali the governmental actors decide where the money of the donors is spent on and since sanitation is not the main priority of the government, also few donated financial means are provided for the sanitation sector. This dependency makes the different actors work together in both cities. Political legitimacy lies in both cases with the governmental actors, although this is stronger in Kigali compared to Kampala, where the KCCA still has to gain more authority. The responsibilities of the governmental actors in the two countries are quite similar; both are responsible for the policies, regulations, and the streamlining and the coordination of the process. Access to participate in the process and the task and role division, however, differs between the two; in Kigali the governmental actors decide who can participate and what their task and role is, while in Kampala everyone can participate and all actors decide themselves what tasks and roles they will take.

So, in both cases the governmental actors work together with the non-governmental actors and have a leading role in the process. However, the governmental actors control the process in Kigali, while they only streamline the process in Kampala.

In this chapter the two cases have been compared considering the way of governance, the sanitation systems implemented, and the role of the government. Kampala fits best with the open co-governance mode slightly overlapping some elements of the closed co- and hierarchical governance mode, and although the different actors work together, the governmental actors streamline the process. In Kigali the actors also work together, but the governmental actors control the process. This coincides with the finding that the way sanitation is governed

in Kigali fits best in the hierarchical governance mode, including some closed co-governance elements. The difference between Kampala and Kigali can also be seen in the analysis of the sanitation systems, where Kigali has a centralized organisation and Kampala a rather decentralized organisation. On the other three variables of the MMA they are comparable. Moreover, it can be concluded that the sanitation systems implemented in Kampala and Kigali are not adequate since they are ecological and institutional unsustainable, the latrines are not accessible for all groups, and the systems depends on the climatic, political and economic situation of the country. Progress is seen, but more action is needed to improve the sanitation situation for all.











## 9 Discussion and Limitations

Previously the way of governance, the sanitation systems implemented and the role of the government in urban sanitation provisioning in Kampala and Kigali have been analysed and compared. In this chapter, the analysis of the organisational and content part of the policy arrangement will be discussed and linked to the questions on which the research is based. Next to this, some limitations of the research will be given.

### 9.1 Discussion

As mentioned in the introduction (see [chapter 1](#)), according to the data of the World Bank (2015) the urban coverage of improved sanitation in Uganda is almost half of Rwanda's urban coverage, respectively 29% and 59%. Just looking at the numbers of the World Bank and the outcome of the analysis it could be argued that the analysis can explain the difference between the coverage rates. Kigali has the most overlap with the hierarchical governance mode, has a centralized organisation in the MMA, and the governmental actors control the process. Due to this controlled way of governing the governmental actors in Kigali are able to enforce the set policy, rules and regulations. Besides, the low amount of actors involved in sanitation provision in Kigali and the leading role of the governmental actors in decision making, result in a fast decision making process compared to Kampala. The strong enforcement and the fast decision making increase the action taken to implement sanitation and improve the situation in the city.

Although this might explain why Rwanda has a higher urban sanitation coverage rate than Uganda, the JMP standards only focus on the capture and containment of the faecal sludge, there are no standards for the rest of the sanitation chain. It is only mentioned that when sanitation facilities are classified as 'safely managed' the faecal sludge should be; treated and disposed in situ; stored temporarily and then emptied and transported to treatment off-site; or transported through a sewer with wastewater and then treated off-site (see [box 1](#)). These are vague and unclearly defined requirements for the other steps of the sanitation chain. It is thus possible to have a high coverage rate for improved sanitation without having adequate emptying, transportation, treatment, and reuse or disposal facilities. This is also what has been observed in Kampala and Kigali. Although in Kampala there are already quite some actors active in the emptying and transportation, the treatment, and the safe reuse and disposal of the faecal sludge, it is not yet sufficient to serve the whole city. In Kigali, however, there are very few actors involved in these steps of the sanitation chain and there is thus almost no faecal sludge emptied, transported and treated. This difference between Kampala and Kigali on the remaining steps of the sanitation chain can also be explained by the results of the analyses; the strict enforcement and fast decision making process of Kigali leave less room for different perspectives and opinions on the issue and thus on the possible solutions provided. In Kampala the process is open for all actors and the plans do not necessarily have to fit the governmental plan. As a result, there is a bigger variety of projects focusing on different aspects of sanitation provision. Not only the capture and containment of faecal matter is dealt with, but also the other steps of the sanitation chain, awareness creation and sensitization are taken into account. The way of governance in Kigali might create a high coverage



rate, it does not improve the other steps of the sanitation chain, due to which it might be less effective in the long run.

Another important issue to discuss are the standards the data of the World Bank is based on, which is provided by the JMP. As has been described in the introduction (see [box 1](#)), the JMP standards make a distinction between ‘improved’ and ‘unimproved’ sanitation. The urban coverage rates mentioned before are the percentages of the population that have access to improved sanitation in the urban areas of Uganda and Rwanda. Improved sanitation separates the waste from human contact and includes “flush toilet, piped sewer system, septic tank, flush or pour flush to pit latrine, ventilated improved pit latrine (VIP), pit latrine with slab, and composting toilet” (JMP, n.d.). Shared improved facilities – it is a shared facility when two or more households use the facility – are not included in the percentage of improved sanitation of the World Bank; it would add 44% to the Ugandan urban coverage rate and 24% to the Rwandan urban coverage rate if it was included (JMP, n.d., see [appendix 7](#)). Meaning that the percentage of the urban population having access to improved sanitation facilities, either private or shared, increases to 73% in Uganda and 83% in Rwanda. In this case, the difference between the urban coverage rates of Uganda and Rwanda decreases and the depiction of the sanitation situation in the countries seems more optimistic. Although, there is a lower chance that shared improved facilities are well maintained and kept clean, due to a lacking feeling of responsibility and ownership, this is not included in the data of the JMP. It is, therefore, difficult to state that shared facilities are by definition inadequate sanitation, since well-maintained and clean improved shared facilities could be adequate as well. The numbers used by the World Bank are, therefore, insufficient to make a judgement about the coverage rate of improved sanitation in the two countries. With these new numbers Rwanda still has a higher coverage rate than Uganda and this can still be explained by the difference in governing, but, it cannot be said that only the hierarchical governance mode is effective in providing sanitation, since Kampala – with a rather open co-governance mode – provides access to the big majority of the urban areas as well. However, the probability that sanitation is clean and safe is higher in Kigali than in Kampala. Further research is necessary to make a more realistic picture of the sanitation situation in the two cities.

The strong enforcement and fast decision making in Kigali increase the actions that is taken in the process, however, it also leaves less room for different perspectives and thus it might be less effective in the long run. Moreover, the numbers of the World Bank give an incomplete picture of the actual sanitation situation in the cities. More research is necessary to make a more realistic overview of the sanitation facilities present. Besides, the JMP standards, on which the World Bank numbers are based, only focus on the first two steps of the sanitation chain, and do not include requirements for the emptying, transportation, treatment, reuse or safe disposal of the faecal matter. The analyses of the way of governing and the role of the government might thus partly explain the difference between the coverage rates of Uganda and Rwanda.

Another important aspect to discuss is the link between the governance modes and the MMA. In the second chapter I argued against the statement of Arnouts et al. (2012) that it is not possible to connect a certain policy discourse to a certain governance mode. I argued that the governance modes overlap with the first two variables of the MMA – organisation and end-user participation –, and therefore a policy discourse can be connected to a governance mode. The results of Kampala confirm this hypothesis, since the open co-governance was linked to combinations 13 and 14 – which are both MMA’s – as can be seen in Kampala with on-site sanitation. However, the results of Kigali show that it is not necessary true that a hierarchical or closed co- way of governing will

implement the conventional sanitation system or a variation on it. Instead, the hierarchical way of governing in Kigali has implemented a MMA as well to improve their sanitation provision. This either means that; based on theory it is possible to connect a policy discourse to a certain governance mode, but in practise the governance of policy domains can be different while the policy discourse is similar in each domain and vice versa; or there is an imbalance between the sanitation system implemented and the governance mode practised in Kigali. I will elaborate on the imbalance a bit more.

This imbalance can also be seen by the future plans of the actors involved; the governmental actors in Kigali want to implement a centralized large scale sewage system, which fits with the hierarchical way of governing. However, the other actors – representing the challenging coalition – are more in favour of small scale systems with inclusion of the end-users, either an alternative sanitation system or a MMA. As has been discussed before, implementing a MMA is most sustainable since it combines features of both conventional and alternative sanitation systems and it takes into account the socioeconomic, ecological and technical circumstance of the city. The plans of the governmental actors are thus not sustainable, which might explain why they are still not implemented in the city. The plans of the challenging coalition are more beneficial in the long run. It would therefore be recommended to continue the way they started in Kigali, focusing on the improvement of on-site sanitation in which high involvement of the end-users is necessary. Transforming the way of governance by increasing the participation of actors and stakeholders in the decision-making process and discussions on the possible solutions might, thus, be beneficial for the improvement of the sanitation situation in the city and makes the way of governance practised harmonize with the sanitation system implemented.

## 9.2 Limitations of the Research

During the research I came across some limitations of the theories used and the research itself. In this part I would like to elaborate briefly on some of the issues.

First of all, it should be stressed that the theory of the governance modes and the MMA are simplified ways to look at and analyse more complex social structures. They are used as tools to provide a framework for the data gathered. The different governance modes and the 16 combination of the MMA are predetermined depictions. In reality, however, more nuances exist; the way of governing overlaps with different modes, as can be seen in Kampala and Kigali, and the sanitation systems are also more complex than the four variables used. The spatial-technical variable already includes the coverage area of the sanitation system and the treatment capacity. Since these can be very different in one city, as has been seen in Kampala, I would suggest to split this variable. By doing so the different steps in the sanitation chain are recognized since the coverage area includes the capture, containment, emptying and transport of the faecal sludge and treatment capacity, obviously, the treatment of it.

Secondly, the MMA and its variables are not well defined in the literature available about the MMA; the descriptions are vague and broad, and are therefore not easy to be used as indicators defining the sanitation systems. It is because of this unclarity that I have defined the four variables myself based on the existing literature and my own interpretation. The organisational variable is about the actors determining the tasks and roles of all actors involved, differing from governmental agencies to the community, neighbourhoods and households. The end-user participation includes which actor(s) execute and implement these tasks, scaled from no end-user

participation to end-user participation throughout the whole process. The third variable – sanitary flows – makes a division between separate or combined treatment of the waste(water) flows (urine, faeces, flushing water, greywater and storm water). The fourth variable is the spatial-technical variable and includes the size of the coverage area and treatment capacity of the sanitation systems in place, ranging from the whole city to household(s) level. As has been explained in the previous paragraph, I suggest to split this variable in coverage area and treatment capacity, however, for this research I used the combined spatial-technical variable.

Besides, in this research I have used the theory of the governance modes and the MMA next to each other in order to analyse the different dimensions of the policy arrangement. Since the governance modes have some overlap with the organisational and end-user participation variable of the MMA, it can also be argued that the theory of the governance modes can be used to analyse the first two variables of the MMA. In that case, the governance modes and the MMA will not be used next to each other, but the governance modes will function as part of the MMA. Due to this overlap the analysis of the first two variables of the MMA seems a bit unnecessary and only the other two variables add something to the analysis. However, the MMA in this research shows that different governance modes can still implement similar sanitation systems and gives direction towards more sustainable and adequate sanitation solutions.

Another issue that has to be taken into account is that the description about the sanitation situation in Kampala and Kigali is incomplete. There are, for instance, more types of resources used besides the financial means, knowledge and research, and political legitimacy, like trust, network, and the (social) media. Non-governmental actors have built trust and a network at community level which is valuable for the projects, or actors use (social) media to spread their message. These are not included in this research since little information has been gathered about these topics. Moreover, all the data gathered has been provided by the organisations, governmental actors, companies, universities, and networks active in the sector. No opinions of the households, who actually deal with the sanitation facilities daily, have been taken into account. This provides a rather narrow view on the sanitation situation in Kampala and Kigali. Besides, there are twice as many interviews conducted for Kampala as for Kigali, and thus twice as much information to triangulate the data. However, this also represents the amount of actors involved in the sanitation sector in Kigali. Further research is, thus, necessary to dig deeper into the issues mentioned.











## 10 Conclusion

I started this research wondering what the role of the government is in providing sanitation for its citizens. I wanted to investigate whether the role of the government could explain the differences in sanitation coverage in Kampala and Kigali. In order to do so I went to Kampala and Kigali to gather data on the actors involved, what their resources, power and influence are, how they interact with each other, and what their perspectives are on the problem and possible solutions concerning sanitation, focusing specifically on the role of the governmental actors in the process. After describing the sanitation situation using the sanitation chain of IRC, the institutional framework, the actors involved, the cooperation between the actors, the decision making process, and the resources of the actors were addressed. The information gathered was assessed using the theory of the policy arrangement, the governance modes, and the MMA. The two separate analyses of Kampala and Kigali were compared and discussed, and although more research is necessary to provide a complete picture about the sanitation situation and the role of the government in it, I tried to give an answer to my research question.

The first sub question of this research is about the current situation of sanitation in Kampala and Kigali. Although Kampala has some off-site sanitation, the majority depends on on-site sanitation, which in many cases does not comply with the international standards of improved sanitation facilities. The way faecal sludge is emptied and transported has to be improved as well to be safe and affordable for all citizens. Besides, the lack of awareness, priority and the feeling of ownership of the sanitation facilities by the people makes the effort put in by the households to improve their sanitation low. Also the operating treatment plants are not designed to deal with the current and future production of faecal sludge, as well as, the reuse and disposal of it. In Kigali the situation is not better. Since off-site sanitation does not exist, the city relies on on-site sanitation, and not all the on-site sanitation complies with the international standards for improved sanitation. The septic tanks are emptied by tankers, but for the pit latrines that are not accessible by these tankers, there is just one private operator providing the emptying services. For the collected sludge there is no other way than to go to the landfill, and just a small part is reused. Treatment and reuse of the faecal sludge is thus lacking for the major part of it, making the sanitation chain incomplete and leading to disposal of almost all faecal sludge into the environment.

The sanitation situation of Kampala and Kigali have been assessed along the lines of the three criteria of the MMA for adequate sanitation systems; ecological and institutional sustainability, accessibility, and flexibility, resilience and robustness. Still much has to be done in Kampala and Kigali in order to comply with these criteria; the sanitation systems in the two cities lack both kinds of sustainability, the latrines are not accessible for all people, and the systems depend on the climatic, political and economic situation of the country, making the sanitation systems inadequate. Still quite some progress is needed to make sanitation not an issues any more for all people in Kampala and Kigali. It can be argued that although the numbers of the World Bank suggest that sanitation is twice as good in Kigali as in Kampala, the numbers are not a reliable reflection of the actual sanitation situation in the capital cities, and it is therefore difficult to state that the sanitation situation is 'better' in Rwanda, as the numbers suggest. Further research is necessary to draw a more detailed picture of the sanitation facilities present.

Because of this lack of adequate sanitation, I would like to pay some attention to some observations about the sanitation situation in Kampala and Kigali that are not yet discussed and that might help to improve the situation. To start with, in Kampala sanitation is part of several ministries; for example, school sanitation is included in the MoES, MoH is mainly involved with sanitation in the public health sector and at household level, the KCCA focusses on sanitation in Kampala, and MoWE is supervising the sector. This makes the coordination more complicated since communication between the different ministries is necessary, and it influences the financial allocation for the WASH sector. It might therefore be beneficial to improve the communication between the different ministries or make one institute responsible for all sanitation issues.

Moreover, many of the forums or working groups just meet once or twice a year. This makes the coordination of the process difficult and overlap is more likely to happen, meeting more often could help to improve the coordination and avoid the overlap.

Besides, in order to increase the initiatives taken in the sanitation sector in all steps of the sanitation chain, the governmental actors in Kigali have to make participation more appealing for private operators.

Another issue noticed, is that most of the policies which guide the WASH sector are outdated. Updates are necessary to make them fit to the current situation, especially considering the rapid change the city is experiencing. Also on the technical side the facilities have to be updated to the current situation; the Lubigi treatment plant might be the most advanced technology there is for faecal sludge treatment, but it cannot handle the demand of the city. Policy as well as technical updates with the current situation of the city could be beneficial for the provisioning of sanitation.

Most importantly, the priority of sanitation at all levels. Sanitation is not a priority for households, and it is not a priority for the national government in Uganda, which means that insufficient funding is provided for the improvement of the sector. In order to improve the sanitation situation, it is, thus, necessary that sanitation becomes a priority for the households and for the government. Also in Kigali sanitation is not a priority for most of the households and even less than in Uganda for the national government. They keep on dumping the faecal sludge on the dumping site, not taking into account the growth of the city and thus the needs of the people. There is, especially, little attention paid to the situation of the less wealthy of Kigali; the informal settlements are being removed and replaced with higher income houses, leaving the people from the informal settlement without a place to go. For both cities counts that the lack of priority of sanitation influences the funding for the WASH sector and thus the sanitation situation in the two cities, which is still far from perfect. Using sensitization and awareness creation programs could make people aware of the necessity of sanitation and make sanitation a priority at all levels.

For the second and third sub question the kind of governance practised in the provisioning of sanitation and the role of the government in it in Kampala and Kigali has been analysed and compared. Based on the findings, Kampala fits best with the open co-governance mode slightly overlapping some elements of the closed co- and hierarchical governance mode, in which the governmental actors streamline the process. For on-site sanitation, Kampala has a rather decentralized organisation, high involvement of the end-users, a small scale coverage area of the sanitation system and a large scale treatment system, and combined sanitary flows. For off-site sanitation the organisation is also decentralized, the coverage area is small scale, the treatment capacity is large scale, and the sanitary flows are combined. However, the end-user participation is low in off-site sanitation. The way of

governance practised in Kampala has some elements of the hierarchical and closed co-governance modes. As has been discussed before, this might be explained by the transition from the KCC to the KCCA; the KCCA is increasing their authority by creating clear standards and rules, and making the enforcement happen stricter and more consistent. If the KCCA continues to gain more control over the process, the way of governance and the sanitation system might change and become more centralized or hierarchical. However, only the future can show what will happen. It is, thus, necessary to keep the research about sanitation updated, like this research is an update to research done before.

In Kigali the governmental actors control the process, which also explains why Kigali fits best with the hierarchical governance mode including some closed co-governance elements. For their on-site sanitation they have a centralized organisation, high involvement of the end-users, a small scale coverage area and treatment capacity, and combined sanitary flows. There is no off-site sanitation in Kigali. Since Kigali has a stricter enforcement and faster decision making process than Kampala, actions are taken in order to improve sanitation, which might have helped the coverage rate to be so high compared to Uganda. However, it leaves little room for other perspectives and, thus, it might be less effective in the long run and for all groups of the population. Moreover, due to the strict way of governing in Rwanda it is more difficult for actors to participate in the process; this could explain why Kigali is lacking most of the steps of the sanitation chain. The way of governing in Kampala is open for all actors, and thus more initiatives are taken in the other steps of the sanitation chain as well, improving the sanitation through the whole chain. One way of governing is, thus, not necessarily better than the other, but feature of both help to improve the sanitation situation in the cities.

The difference in coverage of sanitation provision can, thus, partly be explained by the role of the government in the governance of sanitation provision in Kampala and Kigali. The process in Kampala might take longer, but it could be more effective in the long run. Kigali's way of governing has led to a high coverage rate, but the other parts of the sanitation chain are lacking. For the short term Kigali's sanitation situation, thus, looks better than Kampala's. The governance modes show the way sanitation is governed in the two cities which has led to a high coverage rate in Kigali, while the different parts of the sanitation chain are taken care of in Kampala. Looking and learning from each other, combining the best features of both ways of governing might help to improve the sanitation situation in the cities.

Besides, the results have shown that both cities have implemented a MMA and that it is, thus, possible to have the same sanitation system regardless of who determines the tasks and roles of the actors involved – confirming the assumption on which the MMA is based – and regardless of the governance modes practised. Since it is argued that a MMA is most sustainable to implement, it is recommended for both cities to continue the way they started, but improve on the three criteria of adequate sanitation. Moreover, transforming the way of governance in Kigali by increasing the participation of actors and stakeholders makes the way of governance practised harmonize with the sanitation system implemented, which could be beneficial for the improvement of the sanitation situation in the city.

The difference in coverage of sanitation provision in Kampala and Kigali is not a reliable depiction of the reality. However, it can be stated that the government plays quite a crucial role in the way sanitation is governed in Kampala and Kigali, and they, therefore, influence the environment, health, clean and safe water and food, human capital, and income, and thus poverty. The degree of poverty, subsequently, influences the resources

people have, and the opportunities and possibilities to make choices and achieve the dreams and ambitions people value, and have reason to value. However, as has been explained, all steps of the sanitation chain need to be dealt with in order to provide adequate sanitation. Cooperation with non-governmental actors, clear rules and regulations, and strict enforcement are, therefore necessary. By doing so, the governmental actors and the non-governmental actors together will improve sanitation, increase the opportunities people have, and decrease poverty.





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# Appendix

## Appendix 1: Interview List

Reference Number <sup>57</sup>	Actor	Name Respondent	Interview Date, Length & Type	# for R. <sup>58</sup>
<b>Kampala</b>				
<b>1</b>	NWSC	Enos Malambala	30-11-2016	1
			54 min, face-to-face	
<b>2</b>	NAWAD	Isaac Wamalwa	01-12-2016	2
			29 min, face-to-face	
<b>3</b>	Makerere University	Charles Niwagaba	02-12-2016	3
			57 min, face-to-face	
<b>4</b>	Water for People	Martin Mawejje	05-12-2016	4
			29 min, face-to-face	
<b>5</b>	UCDV	Eddie Mutebi	05-12-2016	5
			55 min, face-to-face	
<b>6</b>	NWSC	Christopher Kanyesigye	06-12-2016	6
			38 min, face-to-face	
<b>7</b>	UPF WASH	Binen Jackie	08-12-2016	7
			49 min, face-to-face	
<b>8</b>	GIZ	Janka Rokob	08-12-216	8
			45 min, face-to-face	
<b>9</b>	KCCA	Jude Byansi Zziwa	12-12-2016	9
			44 min, face-to-face	
<b>10</b>	NWSC	James Maiteki	13-12-2016	10
			13 min, face-to-face	
<b>11</b>	PCEA	Jafari Matovu	13-12-2016	11
			50 min, face-to-face	
<b>12</b>	UNICEF	Wilba Force	13-12-2016	12
			26 min, face-to-face	
<b>13</b>	WHO	Collins Mwesigye	14-12-2016	13
			62 min, face-to-face	
<b>14</b>	Community Leader	Philip Ssekimpi	14-12-2016	14
			Not recorded, in the field	
<b>15</b>	CIDI	John Sempebwa	14-12-2016	15
			45 min, face-to-face	

<sup>57</sup> This number is used as reference in the paper.

<sup>58</sup> Number for researcher. This is irrelevant for reader.



16	SANDEC Eawag	Nienke Andriessen	15-12-2016 Not recorded, via skype	16
	AMREF	Hajra Mukasa	16-12-2016 44 min, face-to-face	17
	KCCA	Richard Mutabazi	19-12-2016 60 min, face-to-face	18
	MoH	Stephen Kayanja	02-01-2017 53 min, face-to-face	19
	Water Aid		03-01-2017 33 min, face-to-face	20
	UWASNET	Josephine Mugala	04-12-2017 31 min, face-to-face	21
	Enviro-Care Initiatives	Issa Moito	07-01-2017 29 min, face-to-face	22
	URWA	Anne Kikundwa	Not recorded, via email	23
Kigali				
			23-01-2017 47 min, face-to-face	1
	Water for People	Stephen Muginbo	23-01-2017 34 min, face-to-face	2
	Pivot	Alex Bingwa & Laura Stupin	24-01-2017 40 min, face-to-face	3
	Water Aid	Fiona Uwera & Jean Paul Mborushimana	24-01-2017 37 min, face-to-face	4
	WASAC	Olivier Kanangire	24-01-2017 37 min, face-to-face	5
	SNV	Monique Zwiers	26-01-2017 55 min, face-to-face	6
	World Vision	Julius Othello Ben Dedale	26-01-2017 36 min, face-to-face	7
	MININFRA	Fidele Nteziyaremye	31-01-2017 Not recorded, face-to-face	9
	University of Rwanda	Amans Ntakarutimana	03-02-2017 54 min, face-to-face	11
	CoK	Fidele Tuyisengez	06-02-2017 Not recorded, face-to-face	12
	SWECO	Henock Belete & Jan Spit	01-03-2017 71 min, face-to-face	13

AMREF	African Medical and Research Foundation
CIDI	Community Integrated Development Initiatives
CoK	City of Kigali
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
KCCA	Kampala City Council Authority
MININFRA	Ministry of Infrastructure
MoH	Ministry of Health
NAWAD	National Association for Women's Action in Development
NWSC	National Water and Sewerage Corporation
PCEA	Private Cesspool Emptiers' Association
SANDEC (Eawag)	Sanitation, Water and Solid Waste for Development (Swiss Federal Institute of Aquatic Science and Technology)
SNV	Stichting Nederlandse Vrijwilligers
SWECO	Swedish Consultants
UCDV	Union of Community Development Volunteers
UNICEF	United Nations Children's Fund
UPF WASH	Ugandan Parliamentary Forum on Water, Sanitation and Hygiene
URWA	Ugandan Rain Water Association
UWASNET	Ugandan Water and Sanitation NGO Network
WASAC	Water and Sanitation Corporation
WHO	World Health Organisation

## Appendix 2: Interview Guide

- What is your name?  
.....
- For what orga/company/insti do you work?  
.....
- For how long are you employed at this orga/company/insti? .....
- What is your function in the orga/company/insti?  
.....
- For how long do you hold this function? .....
- What is your role in the provision of sanitation?  
.....
- For how long are you involved? .....

### Core

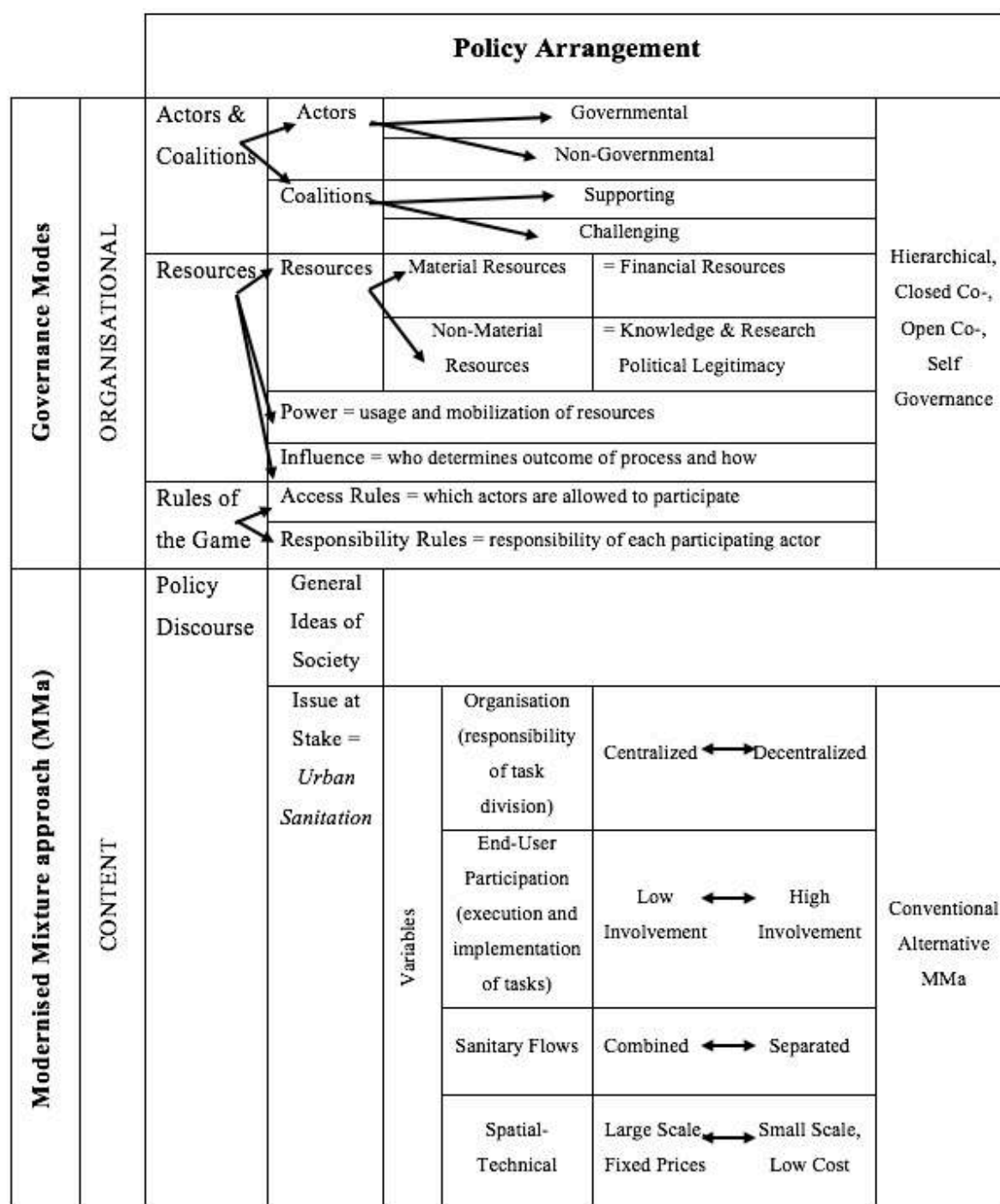
- Policy discourse I
  - Do you think that there is a problem concerning sanitation provision in Kampala?  
**YES/NO**
  - What is the problem with sanitation in Kampala?
  - What are the causes for this problem?
  - What is adequate sanitation?
  - What is adequate access to sanitation?
  - What is the goal for the sanitation provision?
  - How is this goal reached?
  - What is the impact of the development process so far?
  - Is there a difference in areas concerning these questions?

- Actors
  - What (kind of) actors are involved in the provision for sanitation in Kampala?
    - **Governmental:** .....
    - **non-governmental:** .....
    - **market:** .....
    - **civil society:** .....
    - **international:** .....
    - **national:** .....
    - **local:** .....
  - *What are the main actors?*
  - *What are the most dominant actors?*
  - How involved is your orga/company/insti in the process?  
**1 (not at all)      2      3      4      5 (very much)**
  - What is the relation between your orga/company/insti and the actors involved?
  - What is the role of the non-governmental actors?
  - What is the role of the government?
  - What is the role of the end-users?
  - Does that differ per area?
- Coalitions
  - *Are there groups formed of actors that work together to achieve a certain goal?*  
**YES/NO (No => resources)**
  - *How many of these groups are there? .....*
  - And at what level?
  - *What actors are part of the group(s) that influence the process of sanitation provision in Kampala?*
  - What kind of group(s)?  
**1 (loose)   2      3      4      5 (strong)**
  - Who can be part of the group(s)?  
**1 (selection)      2      3      4      5 (everyone)**
  - Who decides this?

- Resources
  - What resources does your orga/company/insti have?
- Material resources
  - Financial
    - Subsidies
    - Tax
    - Donor
    - Private
- Non-material resources
  - Knowledge
    - Scientific
    - Non-scientific
    - Expertise
  - Political legitimacy (rules, law)
  - Access to media
- Other: .....
- Influence
  - What actors manage what resources?
  - How are the resources distributed within and outside your orga/company/insti?
  - When are the resources used?
  - Who mobilizes the resources?
  - How do they use these resources?
  - Are actors dependent on each other's resources? **YES/NO (No => power)**
  - How are actors dependent on each other's resources?
- Power
  - What actors have the ability to control/influence the process?  
**1 (one) 2 (few) 3 4 5 (everyone)**
  - How much control/influence does your orga/company/insti have?  
**1 (no control/influence) 2 3 4 5 6 7 8 9 10 (all the control)**
  - Which actors have the most control?
  - Which actor influences the perception/understanding of the problem the most?
  - Which actor could change the way the problem is seen?
  - What is the power balance between the actors?
- Formal procedures of decision making and implementation and informal routines of interaction
  - What is the position or purpose of your orga/company/insti in the process?
  - What are the responsibilities of your orga/company/insti?
  - What tasks are included in the process?
  - How are the tasks divided?
  - Who participates in the decision-making process?
  - Who implements the rules/legislations/policies?
  - On what level are the rules/legislations/policies made?
    - **international:** .....
    - **national:** .....
    - **local:** .....
  - What is the goal of the rule/legislation/policy?
  - Who has the power to change the rules/legislation/policies?
  - How do actors involved interact with each other?
  - Why do actors interact in this way with each other?
- Policy discourse II
  - How is the decision-making process organised in Kampala?  
**1 (closed) 2 3 4 5 (open)**  
**1 (unorganised) 2 3 4 5 (organised)**
  - What does your orga/company/insti think about the way sanitation provision is organised in Kampala?
  - What is the most effective way sanitation provision is organised and managed by the actors involved in Kampala?  
**1 (top-down) 2 3 (combi) 4 5 (bottom-up)**
  - Who is responsible for the improvement of sanitation?
  - Are end-users satisfied with the process/result?
  - Do you think the sanitation provision implemented is environmentally sound?

## Appendix 3: Schematic Depiction of Theoretical Framework

Framework used for the analysis based on the theoretical framework

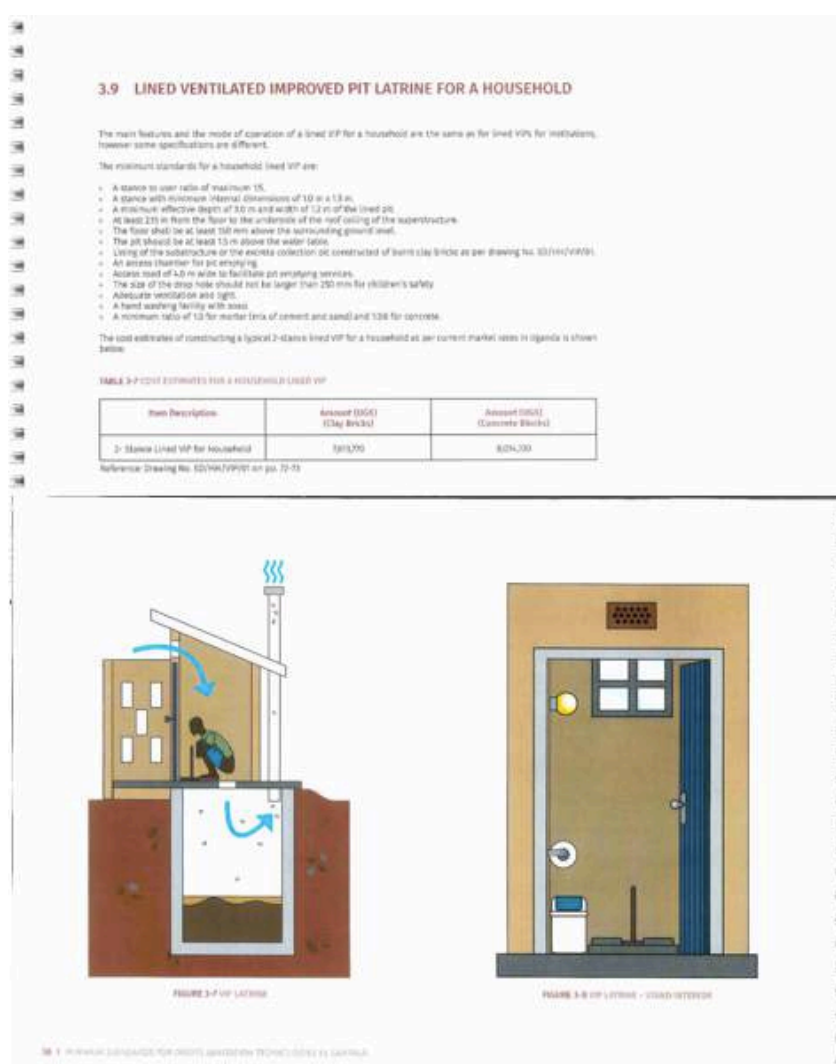


## Appendix 4: Example of KCCA Standards

The KCCA together with the Swiss Agency for Development and Cooperation (SDC) and GIZ are working on standards for on-site sanitation. The draft version of the “Minimum Standards for Onsite Sanitation Technologies in Kampala, Uganda” date from April 2016 and were provided to me by GIZ. This draft version includes the minimum standards and the engineering design drawings for the following sanitation facilities:

- General principles and design stage requirements
- General features of a public sanitation facility
- Public water borne toilets
- A household cistern sitting flush toilet and squatting flush toilet
- A single stance (double vault) UDDT for households
- Bio-latrines for institutions
- Lined ventilated improved pit latrines for schools and a household
- A septic tank and a soakaway

The following pictures show these details for the household pit-lined VIP latrines and the standard septic tank as an example of the guidelines.





A stylized illustration of a building with a chimney, a sink, and a red door. The building is tan-colored with a white roofline. A tall, thin chimney is on the left. A white sink on a pedestal is in the foreground. A red door is on the right. The building has several rectangular windows. The ground is brown with some small plants.

**SECTION X-X**

- Welded steel arch to 100mm dia. PVC pipe
- 28 gauge prepared galvanized steel
- 100.0mm radius
- 75 mm thick 1:2 concrete slab
- 75 mm thick asphalt upon 40mm stone
- 200x200mm thick C or trap beam with 4T12 bars
- 200 mm thick brick with 1:4 mortar, plastered and steel finished
- 500mm thick base concrete 1:3:6

**Plan view**

- 4000mm wide base
- 2000mm wide central area
- 4000mm wide steel mesh asphalt
- Base for the pit
- Tubed effluent percent concrete cover for draining chamber

- All dimensions are in millimeters and written dimensions take preference to noted dimensions.
- All walls be reinforced with long bars at every three alternate courses.
- All reinforced concrete be as details provided by the Engineer in part for the specifications.
- All doors be 800mm x 2050mm high steel insulated solid doors with permanent buffers above the visible edge.
- All excavations be made free of water and loose material and sides protected from collapse before proceeding with any other works.
- The Technical specifications for the construction works provided shall be followed and strictly adhered to.



4-25426 BY 1000  
LAWSON WITH 2000

NAME AND ADDRESS	NAME AND ADDRESS
------------------	------------------

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Septic tanks are watertight chambers that below ground level for storage and treatment of sewage and grey water. They are made from reinforced concrete and granite materials with the tanks in prefabricated form. During operation, of the septic tank, most of the solids settle in the first chamber, while oil and grease or scum float on top. A baffle prevents the latter from being carried over to the effluent. A 3000-mm is a porous-walled chamber or second chamber fixed with gravel that allows the septic tank effluent to slowly seep into the ground and is covered with an impervious layer of polythene sheet or metallic sheet (Rao, 1998; Polprasert and Rajarat, 1982; Taylor, 2004).

- Two underground compartments of a septic tank
- Rise work: T-shaped inlets and outlets and the compartment connectors
- Watertight covers for inspection manholes on a septic tank
- Sockways depend on soil with a sufficient absorptive capacity
- Sockways are not appropriate for areas with high water table or prone to flooding

The dimensions of a septic tank depend on the number of years in per specifications on attached drawing for 30/30/50.

Septic tanks and solid waste units should be located at least 10 ft from water sources.

A septic tank should be water proof.

At least the top half of a septic tank should be reinforced concrete through it is recommended to provide reinforced concrete casing and a better reinforced structure.

The rate of accumulation is higher than the decomposition rate and hence an emptying frequency of 2 to 5 years is required depending on the design.

Provision of an access road of minimum 4.0 m width to allow for septic tank emptying with a vacuum truck.

A typical manhole for household is about 13 ft in diameter or square and 15 to 42 ft in depth.

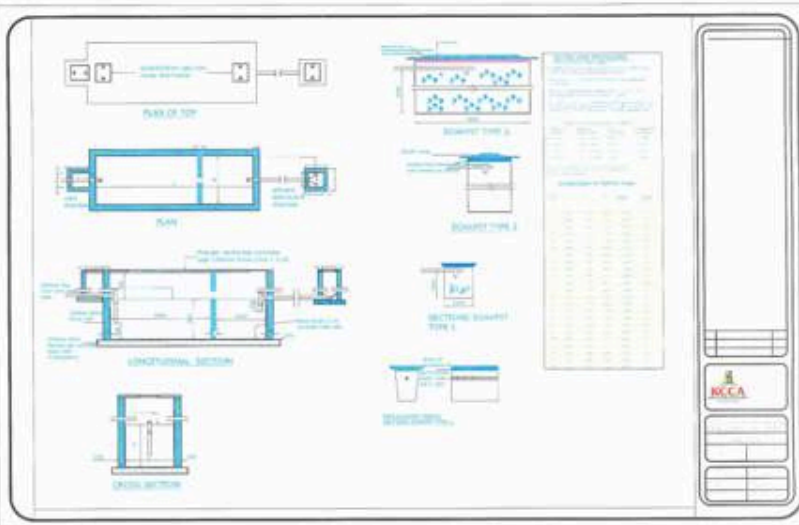
A manhole should be at least 13 ft above the water table.

A well sealed manhole should last between 5 and 15 years without maintenance.

TABLE 3-8 COST ESTIMATES FOR A TOP-TOE TIE AND A STRABURY

Materials and labor for construction of a supply tank and assembly
Amount (\$M\$)
4,895,000

\*Size and cost depend on the number of users. This cost is based on 40 users. Reference: Drawing No. 503/3/00 on pp. 5, 25.



## Appendix 5: Treatment in Kampala: Lubigi

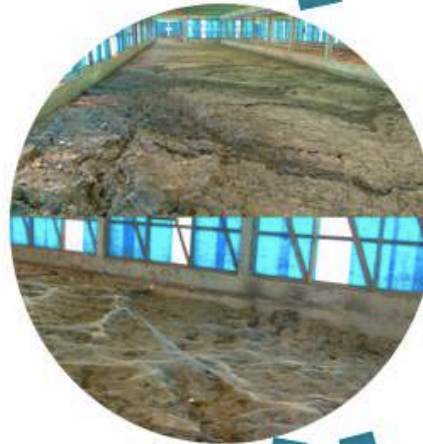


The waste water comes in through the pumps day and night.

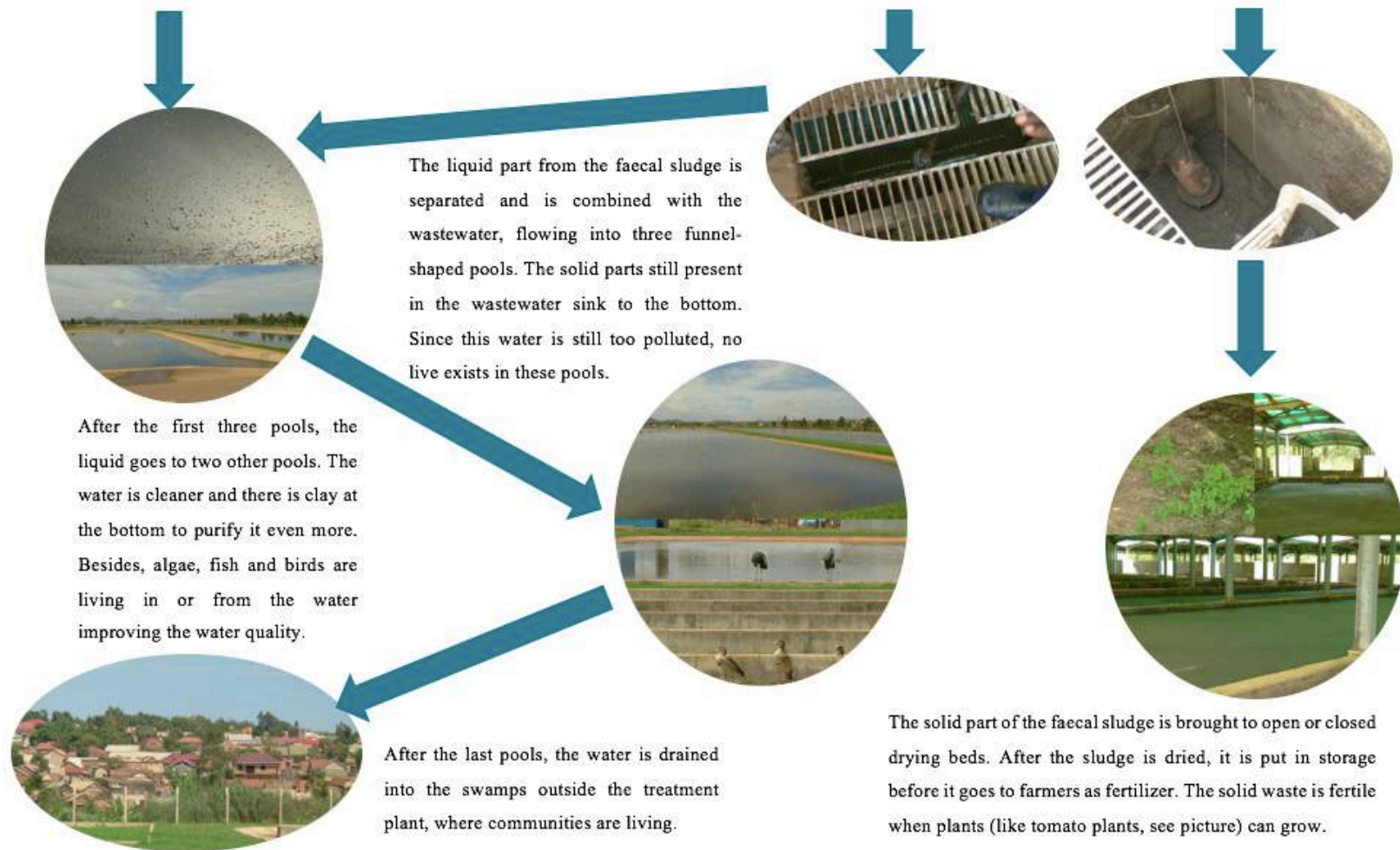


The water flows in small canals where the sand settles down.

The trucks that have collected faecal sludge from septic tanks and pit latrines bring their sludge to the plant.



The faecal sludge separates itself into three layers: the solid faecal matter at the bottom, the liquid in the middle and at the top light weight matter, like larvae and other insects. By opening the pipes at height of the liquid, the liquid parts flow out. The solid matter is collected by a truck.





## Appendix 6: Treatment in Kigali: Pivot, Nduba



The barrels filled with faecal sludge are emptied at the treatment plant of Pivot. The bigger waste is filtered out with chicken wire. After this the barrels are cleaned for the next day.



The faecal sludge and solid waste that is collected by other operators than Pivot is dumped in big holes dug in the ground. Nothing is done with this waste.

To the faecal sludge some chemicals are added.





After the added chemicals, the solid part and the liquid part of the faecal sludge are separated from each other by use of a machine.

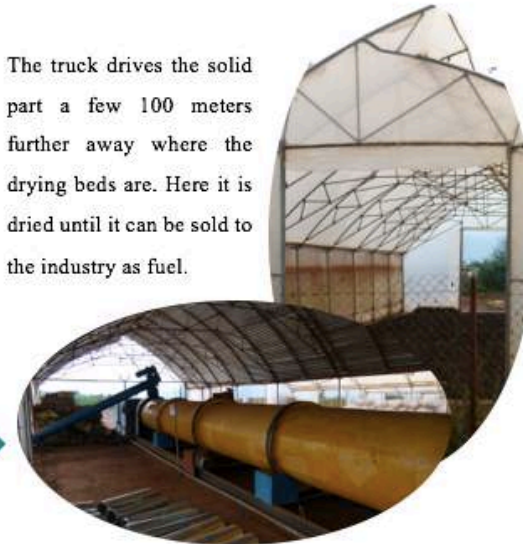


The solid part is taken out of the ponds and put in a small truck.



The liquid part is cleaned in two different ponds. The water is reused at the plant.

The truck drives the solid part a few 100 meters further away where the drying beds are. Here it is dried until it can be sold to the industry as fuel.



## Appendix 7: JMP Coverage Rates

JMP Sanitation coverage rates (JMP, n.d.)

Uganda	Sanitation coverage estimates					
	Urban (%)		Rural (%)		Total (%)	
	1990	2015	1990	2015	1990	2015
Improved facilities	28	29	11	17	13	19
Shared facilities	43	44	6	9	10	14
Other unimproved	27	25	61	66	57	60
Open defecation	2	2	22	8	20	7

Rwanda	Sanitation coverage estimates					
	Urban (%)		Rural (%)		Total (%)	
	1990	2015	1990	2015	1990	2015
Improved facilities	61	59	32	63	33	62
Shared facilities	25	24	4	8	5	13
Other unimproved	11	16	56	27	55	23
Open defecation	3	1	8	2	7	2