‘Making Sanitation Happen’
An Enquiry into Multi-Level Sanitation Governance

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Abstract

The importance of sanitation for human health and development is undisputed. Sanitation is now high on the international development agenda and has become a salient issue in most developing countries, Rwanda and Uganda being no exception. However, there are still shortcomings as regards ‘making sanitation happen’ on the ground. The basic institutional environment and the right governance structures are yet to be fully put in place. This is even more important in the new modes of governance wherein increasing numbers of public, private, and philanthropic actors at different levels of society are involved in sanitation provision and hygiene promotion driven largely by global goals and international development agendas. This has engendered top-down pressure to meet prescribed targets which in most cases miss the complexity of context, distort service priorities, and in some cases compromise sustainability.

This thesis disentangles how sanitation policies are articulated at multiple levels of governance and among various actors in the sector, and eventually translate into investment and behaviour change at the community and household levels. From a multi-level governance perspective, this research is designed to unravel what kind of policy measures or strategies translate into outcome, i.e. changing hygiene behaviours and promoting greater access to decent and functional toilet and handwashing facilities at the community and household levels. This is done by examining sanitation governance structures in Rwanda and Uganda. Specific emphasis is placed on the actors and actions at national, sub-national, community and household levels.

Drawing on multi-level governance as a conceptual framework, qualitative analysis of policy objectives and choices, and quantitative investigations of what motivates hygiene behaviour change at the community and individual levels, this cross-national comparative study is a novel attempt to decipher the complexity surrounding sanitation and to show ‘what makes sanitation happen’. A number of key insights can be discerned from the empirical accounts in line with the research objectives and questions. Policy itself cannot solve problems. There are major gaps in the implementation of policies. These gaps are, however, not new and not specific to the sphere of sanitation and hygiene in Rwanda and Uganda. In
the case of Rwanda and Uganda, ambitious policy commitments and objectives at higher levels of governance and extensive policy reforms are not matched by adequate resources to support effective action on the ground. Further, increasing numbers of actors with different agendas and approaches produce ‘hybrid’ modes of governance, which are prone to known complications of fragmentation and coordination which affect interactions between practitioners and target populations. Privatised service delivery with minimal state control or oversight poses accountability problems and compromises effectiveness in service delivery, especially to the poor and underprivileged. This is particularly the case in Uganda where citizens tend to be considered simply as customers by private operators and not as partners in development.

In terms of political leadership and governance arrangements, Rwanda’s predominantly top-down political leadership and oversight which allows for inclusion at the household and community levels seems to work better in making things happen on the ground and in maintaining accountability. Inclusive development within existing local structures and cultures as in Rwanda reflects ‘backward mapping’ which emphasises inclusion at the ground level and could potentially lead to consensus for change. This is important because individuals and collectives are also key implementers as they enjoy discretion in determining what choices to make or which options to adopt, what actions to take, and whether to comply or not.

Sanitation and hygiene are public problems that require collective action for the common good. This suggests universal compliance to eliminate the negative costs for society. Universal compliance is, however, not achievable in the short-term using only educational appeals which are the most legitimate and commonly used instruments. Other instruments such as shaming, naming, and even fines can trigger short-term desired changes but may not be legitimate.

The insights of this research build on different strands of the literature but most importantly they contribute to the debate in the sanitation sector on what works on the ground, why and where.

**Keywords**: Sanitation, hygiene, behaviour, multi-level governance, institutions, policy, implementation
List of appended articles

Article I: Multi-level sanitation governance: Understanding and overcoming challenges in the sanitation sector in Sub-Saharan Africa

Article II: Linking sanitation and hygiene policy to service delivery in Rwanda and Uganda

Article III: Risk and benefit judgment of excreta as fertilizer in agriculture: An exploratory investigation in Rwanda and Uganda

Article IV: ‘Carrots’, ‘Sticks’, and ‘Sermons’: Household perspectives on sanitation and hygiene behaviours in Rwanda and Uganda
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I dedicate this thesis to my dear parents in Buea, Cameroon – Nyango Ekane Magdalene Ebude and Sango Ekane Joseph Ajale who have always been very keen on following my academic journey – This is for your reading pleasure!
Structure of cover essay

This cover essay summarises the outputs and contribution of my PhD research carried out during the period 2014 to 2018. The articles that make up this thesis provide answers to research questions I set out to unravel at the beginning of my studies. First, an introduction is made to my research. This consists of the general problem field, specific problem area, research objectives, delimitation of the research scope, working hypothesis, core subject of research, research questions, summary of articles that make up the thesis and the key insights and contributions, and the relevance and audience of the research. Second, arguments for the theoretical underpinning are made. Third, an extensive overview of the research field is presented and specific contributions of my research to the literature are emphasised. Fourth, context-specific factors are introduced and the justification for selecting case study countries is further elaborated. Fifth, the research design and methodology is outlined. Last, key insights are discussed in relation to my specific research objectives and questions. Recommendations are also made for further work in this line of research.
1. **Introduction**

1.1. **General problem field – Sanitation challenge**

In the context of this thesis, I use sanitation to refer to the provision of services and facilities for the collection, handling, treatment, disposal and/or use of mainly human excreta (faeces and urine), and the related health and hygiene behavioural aspects.

Imagine yourself in a situation where there is no toilet or where the only available toilet is dysfunctional. This is the prevailing reality of many people in the world. The Joint Monitoring Programme (JMP) of the World Health Organization (WHO) and United Nations Children's Emergency Fund (UNICEF) reports that 892 million people living mainly in rural areas of developing countries still practice open defecation (OD). Moreover, about 2.3 billion people in the world still lack access to basic\(^1\) sanitation facilities that hygienically separate human excreta from human contact (WHO/UNICEF 2017: 4). The magnitude or scale of this mind-boggling problem is described in a jaw-dropping manner by the UN News Centre (2013) which reports that more people in the world have access to a mobile phone (about 6 billion people) than to a decent and functional toilet facility (about 4.5 billion people). It is also reported that if things carry on this way, 1.4 billion people will be without access to sanitation facilities by 2050 (OECD 2012) when the world’s population is projected to be about 9.7 billion (UN DESA 2015).

The plight of people living without toilets or in inadequate sanitation and hygiene conditions is well reported. ‘The Last Taboo’ by Maggie Black and Ben Fawcett (2008); ‘The Big Necessity’ by Rose George (2008); ‘Shit in Developing Cities’ by Ben Fawcett (2016); ‘Where India Goes’ by Diane Coffey and Dean Spears (2017) are just some of many eloquent accounts of this dilemma. Roma and Pugh (2012) liken the present sanitation conditions in most developing countries to that of nineteenth century England when society was plagued by dirt, disease and death. South Asia (SA) and Sub-Saharan Africa (SSA) are regions where sanitation and hygiene facilities are presently greatly lacking (WHO/UNICEF 2015). SA surpasses SSA in terms of the number of people defecating in the open, with 65% of the

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\(^1\) Access to ‘basic’ service is referred to as the use of improved facilities that are not shared with other households and does not take excreta management into account (WHO/UNICEF Joint Monitoring Programme (2017: 8, 27)).
world’s open defecators living in the region. India alone accounts for about 90% of the open defecators in SA (UNICEF 2015).

This thesis focuses specifically on SSA where only 28% of the population has access to basic sanitation facilities (WHO/UNICEF 2017: 106). OD is still rife in some communities and hygiene behaviours leave a lot to be desired in many communities. Even though the practice of OD is generally declining in most of the developing parts of the world, it is still practiced by about 23% of the population of SSA and is prevalent mainly in the rural areas (WHO/UNICEF 2017:106). Of the 27 countries with highest rates of OD, 19 are in this region (WSP 2015). On-site sanitation solutions are predominant in rural and urban settings in the region (WHO/UNICEF JMP 2017, 16), and mainly consist of pit latrines of varying standards (Morella et al. 2008). Flush and pour flush solutions connected to sewers and septic tanks are also common, mainly in urban settings. In addition, the coverage of basic handwashing facilities in the region is reported to be only 15% with 3 out of 5 people (about 89 million people) having these facilities living in urban areas. This includes handwashing facilities with soap and water at home (WHO/UNICEF 2017: 5, 18).

OD and other poor hygiene practices impose costs on society. The human and environmental health costs (Esrey 1996; Fewtrell et al., 2005; Prüss-Üstün et al., 2002; Prüss-Üstün and Corvalán 2006; Prüss-Üstün et al. 2014; UNDP 2016) and wider impact on human and economic development (Bartram and Cairncross, 2010; WSP 2012; UNDP 2016; GLAAS 2017) are well reported. Poor sanitation and hygiene practices take a toll on human health, particularly among children under five years of age and the vulnerable in society (Prüss-Üstün et al. 2014; Fawcett 2016; Mara 2017). Poor health impairs the productive ability of people and keeps them away from school and work. This has implications for human development and undoubtedly exacerbates poverty. Along similar lines, poor sanitation and hygiene is reported by the Water and Sanitation Programme of the World Bank (WSP) to cost between 1% and 5% of Africa’s Gross Domestic Product (GDP) which is equivalent to about US$80 billion annually due to losses attributed to morbidity, mortality, productivity, and access time (WSP 2015).

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2 On-site solutions collect, store and treat waste at source.
Investing in sanitation and hygiene has been shown to lead to direct health and indirect economic benefits. In terms of health benefits, Wolf et al. (2014) report that improved sanitation can decrease diarrhoeal diseases by 28%, and that there are notable differences in illness reduction according to the type of improved water and sanitation system implemented. This is in line with previous reviews that report an estimated mean decrease of 32–36% (Esrey 1991; Fewtrell et al., 2005; Waddington et al. 2009; Cairncross et al. 2010). Similar reviews on handwashing with soap show a reduction of about 48% in diarrhoeal diseases (Huttly et al. 1997; Curtis et al. 2003; Fewtrell et al. 2005; Waddington et al. 2009; Cairncross et al. 2010; Esteves and Cumming 2016). Regarding economic benefits, WSP (2015) estimates that a return of more than US$6.60 can be derived for every US$1 dollar invested in sanitation in SSA. These are good arguments for universal compliance in handwashing and defecation practices, but due to different factors these are yet to trigger a complete transformation of undesirable behaviours and practices in communities where they prevail. High prescribed standards for sanitation facilities, high cost of piloted solutions (McGranahan 2015), structural inequalities and remoteness of rural settlements (O’Reilly et al. 2017), and unavailability of building materials and expertise (Pickering et al., 2015) are some of many factors perpetuating the problem.

1.2. Specific problem area – Governance gaps surrounding sanitation in Sub-Saharan Africa (SSA)

Despite increasing attention over the years to the sanitation and hygiene conundrum and its debilitating implications for development, including policies set at global, regional and national levels and a concerted push for improved sanitation coverage and hygiene behaviour change (Ministerial Statement 2008; ECA 2012; Galan et al. 2013; WSP 2015; GLAAS 2014, 2017), reported progress is slow or limited in SSA. Most countries in the region failed to reach the sanitation target of the 7th Millennium Development Goal (MDG) on environmental sustainability - to halve the proportion of people without sustainable access to basic sanitation facilities by 2015 (WHO/UNICEF 2015).

Several issues remain to be addressed as we work towards the Sustainable Development Goal (SDG) for sanitation. Target 6.2 of this goal is to achieve access to adequate and equitable sanitation and hygiene for all and end OD by 2030. This
is exemplified by the slogan 'leave no one behind'. To eradicate OD within this time frame is quite ambitious. Moreover, 2.3 billion people worldwide are expected to gain access to at least ‘basic’ sanitation facilities by 2030. Specific emphasis is to be placed on the needs of women, girls, and vulnerable people (WHO/UNICEF 2017: 27). Further, the choice, appropriateness and effectiveness of approaches used in the sector are subjects of debate (Ekane and Näsman 2018). The functionality of facilities provided is also emphasised (Kvarnström et al. 2011).

1.3. Shift from government to governance
The role of governance and awareness of constraints and opportunities at different levels of society in achieving sanitation outcomes is increasingly being recognised (Van Vliet et al. 2011; Oosterveer 2009; ECA 2012; Ekane et al. 2014; GLAAS 2017; Ekane et al. 2018). Contemporary governance arrangements are hybrid, multi-jurisdictional, multi-stakeholder, and encompass complex processes of organisation and coordination (Bevir 2012; Bevir 2013, 2). The shift from government to governance changes the nature and role of the state from an implementer to a facilitator. Regarding policy implementation, this implies decentralisation which encompasses transfer of service delivery from central agencies to local offices (deconcentration); transfer of power, decision-making, and financial responsibility from central government to sub-national government or districts (devolution); and transfer of administrative responsibilities to private and voluntary sector actors (delegation) (Bevir 2011, 14). Bevir (2012; Bevir 2013) also describes the shift from government to governance as a move towards networks and markets. Networks consist of multiple actors who are formally separated but depend on one another through horizontal, non-hierarchical, non-competitive relationships to exchange key resources. These relationships are based on trust, collaboration and mutual benefits. On the other hand, markets involve two or more parties exchanging goods in competitive and impersonal transactions. The shift towards markets consists of privatisation, contracting-out, and joining-up. This is characterised by low levels of trust, making it unsuitable for the distribution of goods and services with strong moral intuition (Bevir 2012). Coordination and communication are very important for effective implementation in both cases. Coordination of actors at different levels of society and interaction of practitioners
and target groups during implementation have long been reported to be some of the key factors for implementation failures (Pressman and Wildavsky 1973; Barrett 2004).

Pertaining to sanitation and hygiene, widespread public sector reforms have engendered involvement of non-state actors operating in networks. These are characterised by different modes of public-private partnerships in service delivery. Multi-lateral development organisations and donor agencies play a major role in agenda setting, global and regional policy formulation at the macro-level (supranational policies) e.g. the MDGs and now SDGs, and in promoting and financing different approaches. Philanthropic organisations are also increasingly participating in financing and promoting research and development. At the national level, governments formulate policies in line with global visions and goals albeit with limited resources. This is usually done at the central ministry level (macro-level), with the implementation responsibility being that of the district government, communities, and households at the micro-level. The micro-level actors de facto have a high responsibility in realising sanitation (Morella et al. 2008). In-between the macro and micro-levels is the meso-level web of actors, ranging from government agencies to civil society organisations, and private sector formal and/or informal service providers. These meso-level actors operate in relation to the macro-level policies, plans, and programmes of national governments, multi-lateral development organisations, and donor agencies (Figure 1). Whereas clear messages from the highest governance levels are important, there are many layers of policy interpretation before policy messages reach the community and household levels (Ekane et al. 2014).
From a multi-level governance perspective, a number of factors are reported to contribute to governance gaps. Namely: ambitious policies and inadequate funding; low prioritisation of sanitation as it is often included within water supply and not adequately budgeted for; sectoral fragmentation and coordination problems between actors; unclear roles and responsibilities of different actors; contradictions between formal and informal institutions; multiple barriers to change in sanitation practices and hygiene behaviours; inadequate capacity for reliable data collection, monitoring and evaluation (M&E), and operation and maintenance (O&M). These factors are further expatiated in the overview of the field. Most of these gaps also prevail in other sectors and contexts (Akhmouch and Kauffman 2013). Figure 2 depicts gaps in the sanitation sector outlined in a multi-level governance framework proposed for identifying and overcoming these gaps.
Part of the problem is that governance gaps in general in the SSA context are poorly understood and even neglected as a result of their multifarious, cross-cutting, and complex nature (Jain 1999; Burns and Worsley 2015). This partly explains why development problems such as those in the sanitation sector have predominantly been approached in a linear manner which misses the complexity of the context and problem (Nordtveit 2010; Van Vliet et al. 2011; Burns and Worsley 2015, 1). This has also been shown to be the case in the water sector (Suleiman and Khakee 2017), and constitutes a major flaw of top-down development planning as Burns and Worsley (2015) observe:

“A central feature of all development programmes is the definition of problems that need to be fixed, and the positioning of technical solutions to address these. Viewed by experts, development issues occur within a defined and subjectively bounded domain. Boundaries are set by ideological frameworks that determine what is seen to be beneficial and what is not” (Burns and Worsley 2015, 2).
The above quote reiterates concerns regarding the complex or so-called ‘wicked’ nature of planning problems which Rittel and Webber (1973) describe as ‘malignant’ and ‘benign’:

“The kinds of problems that planners deal with – societal problems (‘malignant’) – are inherently different from the problems that scientists and perhaps some classes of engineers deal with (‘benign’)” (Rittel and Webber 1973, 160).

Pertaining to problems related to sanitation, hygiene and behaviour change, this distinction is relevant in describing issues connected with technology and design which may be easily resolved by engineers (‘benign’) and societal and behavioural issues (‘malignant’) which we continually grapple with without definitive solutions. In this thesis, emphasis is placed on exploring the ‘malignant’ social problems surrounding sanitation and hygiene from an empirical point of view.

1.4. Aim of research
This thesis disentangles how sanitation policies are articulated at multiple levels of governance and among various actors in the sector, and eventually translate into investment and behaviour change at the community and household levels. From a multi-level governance perspective, this research is designed to unravel what kind of policy measures or strategies translate into outcome, i.e. changing hygiene behaviours and promoting greater access to decent and functional toilet and handwashing facilities at the community and household levels. This is done by examining sanitation governance structures in selected countries in SSA. Specific emphasis is placed on the actors and actions at national, sub-national community and household levels.

Specific research objectives are the following:

- **Objective 1**: Examine the role of political leadership, institutional reforms and policy instruments in initiating and driving change in sanitation practices and hygiene behaviours (Macro-level policy assessment);
- **Objective 2**: Explore sanitation policy implementation mechanisms and strategies for coordination and communication between actors at different levels of society (Meso-level mapping of actors and actions);

- **Objective 3**: Examine individual and community views and perceptions of existing sanitation systems, policy instruments, barriers and incentives for investing in sanitation and hygiene, and expectations of who should provide for basic sanitation and hygiene services (Micro-level investigations).

The above objectives reflect issues raised by Bevir (2013, 15) regarding new patterns of governance at local, national, and global levels. This pertains to the type of leadership that is appropriate, how networks are managed, and how the common good is collectively protected.

**Figure 3** illustrates how the research objectives relate to each other in a multi-level governance framework.
Rwanda and Uganda are selected as case study countries for empirical investigations. These countries showed different progress records towards the sanitation target of the MDGs as reported by the Joint Monitoring Programme (JMP) of the World Health Organization (WHO). Rwanda is reported to have made ‘good progress’ towards this target whereas ‘limited or no progress’ is reported in Uganda (WHO/UNICEF JMP 2015). The rationale for selecting these countries is further elaborated in a separate sub-section.

### 1.5. Delimitation of the scope of research

The word sanitation is ubiquitous and can include many aspects. An important part of sanitation relates to technologies, systems and related services (‘hardware’) (Tilley et al. 2008; 2014; Stenström et al. 2011). Nevertheless, another important part of sanitation relates to hygiene behaviour (‘software’), which is almost entirely at the discretion of private individuals – typically in conformity with norms and

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**Figure 3** Research objectives in a multi-level governance framework

<table>
<thead>
<tr>
<th>Level</th>
<th>Objective Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macro-level</td>
<td>Role of political leadership, institutional reforms and policy instruments in initiating and driving change in sanitation practices and hygiene behaviour</td>
</tr>
<tr>
<td>Meso-level</td>
<td>Strategies for communication, coordination, enforcement, monitoring and evaluation</td>
</tr>
<tr>
<td>Micro-level</td>
<td>Individual and community views, perceptions, expectations, barriers and incentives for investing in sanitation and hygiene</td>
</tr>
</tbody>
</table>

Source: this research
codes of conduct at the household and community levels particularly in the SSA context (Van der Geest 1998; Akpabio and Takara 2014). These facets of sanitation are examined in this thesis from a social science perspective. This departs from the engineering or technology perspective which has hitherto been dominant in the sanitation sector (Van Vliet et al. 2011).

It is not my intention in to delve into an in-depth analysis of the root causes of factors characterising the SSA context such as poverty, inequalities, informality and the power dynamics perpetuating them. These complex and cross-cutting factors are important but warrant a different research agenda and theoretical background which I am not employing in this research. I merely emphasise that multiple barriers to behaviour change emanate from such factors, and stress the need to identify the most pressing barriers and the instruments that are appropriate and effective in managing them.

1.6. Working hypothesis
The role that households play in providing sanitation cannot be overemphasised (Letema et al. 2014). Households remain the major source of financing, contributing up to 66% of the investment for water, sanitation and hygiene (GLAAS 2014; GLAAS 2017:17). This is explained by the fact that sanitation practices and hygiene behaviours are predominantly at the discretion of the individual in a more or less private setting. This is most easily discernible in the SSA context where informal norms and codes of conduct prevail and often contradict public policy (Ekane et al. 2012; Ekane 2013). With little or no straight-forward relation between policy objectives and individuals and collectives, this disconnect perpetuates variation in policy outcomes. As a result, I contend that when what is being promoted or prescribed in policy at the macro governance level reflects the reality and means of households and communities at the micro level – then ‘sanitation will happen’. One plausible way of analysing this is through ‘backward mapping’ which enables inclusion of stakeholders into the process of designing and implementing reforms, builds consensus for change based on experience with small-scale policy modifications, and enhances flexibility and discretion at the ground level (Elmore 1979-80, 604; 1985; Fiorino 1997, 253). This is summarised in Figure 4.
1.7. Core subject of research
The ways in which collective impacts are produced in a social system is the core subject of this thesis (Hill and Hupe 2014: 1, 13). This entails turning policy objectives into outcomes during the policy process. The policy process is defined by Weible (2014) as interactions between policy and the surrounding actors, events, contexts, and the outcome of policy. During this process, decisions and actions are taken with respect to a public problem such as sanitation which is to be addressed through a collective course of action for collective interest or the common good (Zürn et al. 2010). This also includes private solutions to public problems (Ostrom 1990), which has become increasingly popular in contemporary governance. I draw on policy and implementation analysis (Bevir 2010, 564) with emphasis on the policy implementation process in the policy cycle (Jann and Wegrich 2007, 45) (see Figure 4 Entry points for analysing policy outcomes from top-down and bottom-up perspectives).
This is done by adopting a multi-level framework in studying multi-actors and processes (Goggin et al. 1990; Hill and Hupe 2014). This multi-level framework is a heuristic device to help understand how policy decisions made at the top levels of governance are translated into action at the level of target populations (Lynn et al. 2000; Roll et al. 2017).

The multi-actors in the policy implementation process can be organisations or individuals, some of whom actively seek to influence public policy (Weible 2014: 5). This influence is exerted at the frontline (micro-level) where the policy system interacts with the target population through programmes; by organisation factors (meso-level) such as resources, structure, cultures, competing programme objectives which shape frontline conditions; and at the policy field (macro-level) consisting of networks that are structured by specific policy environments in a given geographical area (Roll et al. 2017). Along similar lines, countries reveal distinctive policy styles characterising the policy process which in turn influences the nature and design of their policies, including the choice of policy instruments (Linder and Peters 1989 and Knill and Tosun 2012: 4). Policy style here refers to
the characteristics of a government’s approach to active or reactive problem-solving and its consensual or impositional relationship to other actors in policy-making and implementation (Richardson 1982: 13). Pertaining to sanitation, since the socio-cultural, economic, political and environmental conditions, as well as the challenges in improving sanitation facilities and changing hygiene behaviours differ from one country to another, policy responses, instruments and institutional frameworks also differ. As a result, the interpretation of global and regional targets and commitments, ambitions of what to achieve, and the choice of instruments to reach them would differ from one country to another. I return to this point in the justification for selecting case study countries as well as in the theoretical section of the essay.

1.8. Research questions

The following research questions guide my enquiry:

- **Research question(s) 1 (RQ1):** How is the implementation of sanitation in Rwanda different from that in Uganda? By assessing the policy implementation strategies in Rwanda and Uganda, I provide insights as to why Rwanda is reported to be performing better than Uganda in improving sanitation coverage. I examine policy and institutional support for sanitation and hygiene and the outcome in terms of sector performance and sanitation coverage in Rwanda and Uganda. In so doing, I identify similarities and differences between the countries in terms of sanitation and hygiene policy implementation processes. This research question addresses objectives 1 and 2. The research approaches employed are exploratory, descriptive, explanatory, and comparative.

- **Research question(s) 2 (RQ2):** How are commonly used instruments viewed by target populations in communities where different approaches are implemented? How does the choice of approaches affect compliance of target populations with community health club (CHC) and community-led total sanitation (CLTS) interventions and the views they have of their own responsibilities and their expectations from government? I investigate views and preferences of target populations regarding commonly used instruments: health messages or behaviour change campaigns; incentives
(motivation) for good sanitation practices and proper hygiene behaviour; punishment – fines; shaming those without toilet facilities; listing of names of people without toilet facilities and following up with them for improvement. This is conducted in settings with different policy solutions to the sanitation and hygiene problem – CHCs in Rwanda and CLTS in Uganda. This improves understanding of how target populations perceive the options at their disposal, and contributes to the ongoing debate on the choice, appropriateness, and effectiveness of approaches commonly used in the sanitation sector. This research question addresses objectives 1 and 3. The research approaches employed are exploratory, explanatory, and comparative.

- **Research question 3 (RQ3):** What are the driving psychological mechanisms underlying sanitation and hygiene related perceptions, judgment, and behaviours? I investigate the extent to which the nature and characteristics of excreta and excreta-related practices shape perception and drive individual judgment and decision-making. This research question addresses objective 3. The research approaches employed here are exploratory, explanatory, and comparative.

Details on how the RQs are operationalised and how case study sites are selected are elaborated in the articles that make up this thesis. Excerpts are presented in the methodology section of this cover essay.

**1.9. Summary of articles**
My research questions are addressed differently in four articles. As lead author, I conceived and wrote all the articles with inputs from a number of co-authors:

**Article I:** Multi-level sanitation governance: Understanding and overcoming challenges in the sanitation sector in Sub-Saharan Africa. Lead author, Nelson Ekane.

In this article, I question the path and pace of development of sanitation in SSA and argue for the need to draw on a multi-level governance perspective and institutional theory in analysing sanitation governance. The paper
is based on a review of literature on sanitation, hygiene and related governance gaps. The discussion in this article sets the scene for my research and in a direct way serves as an introduction to the problem, context, and some of the concepts that I subsequently use in my research.

In this article, I contend that the multi-level mode of governance is prone to known complications of coordination. This is exacerbated by severe resource constraints endemic in the SSA region. Path dependence and institutional inertia are used to attempt an explanation of the supply and technology driven approaches that have hitherto been dominant in the sector.

**Article II:** Linking policy and institutional frameworks to sanitation provision and hygiene promotion in Rwanda and Uganda. Lead author, Nelson Ekane. This article is based on both an assessment of policy objectives and empirical research on the policy implementation processes in Rwanda and Uganda. It directly addresses the gap between policies for sanitation and hygiene, implementation processes, and outcome drawing on policy and implementation theories. An analysis of the institutional arrangements and reforms that characterise the sanitation sector in both countries is presented. RQ 1 and 2 are addressed in this article.

Following Jann and Wegrich (2007, 51) decisions on a specific course of action and the adoption of a problem do not imply that action on the ground will strictly follow policy-makers’ objectives. Along similar lines, I reiterate that implementation is critical to the success of policy and therefore failure to anticipate implementation problems in policy making and policy reform processes may lead to failure to achieve programme objectives (Weaver 2014). Most importantly, I point out that, specifically for sanitation and hygiene, one of the main sources of the implementation gap is the disconnect between policy objectives set at the macro-governance level, usually in response to international and regional development goals and commitments, and basic actions at the household and community levels where investment in latrine and handwashing facilities is predominantly made (GLAAS 2017, 17). Further, the increasing number of actors in the sector presents coordination and harmonisation problems which partly contribute to deviations from policy objectives. This can be said to be the case in
Rwanda and Uganda where different actors with varying agendas are promoting and funding different approaches.

The approach to sanitation in Rwanda is predominantly top-down but aimed at involving local communities. This is explained by the institutionalisation of stringent performance contracts and the CHC approach, both of which have their roots in the Rwandan culture. Within the performance contract scheme, line ministries, public agencies and district officers sign formal performance contracts with the president to deliver on specific outputs. The CHC approach involves the promotion of inclusive development within existing local structures and builds on trust, collaboration and mutual benefits which are some of the characteristics of networks. On the other hand, CLTS and sanitation marketing (SanMark) are promoted as flagship approaches within policy in Uganda. In both countries, private operators and NGOs play key roles in filling the finance and human resource gaps. The move towards the private sector for service delivery is, however, more evident in Uganda where market development has taken precedence (WSP 2016: 23). Increasing involvement of non-state actors presents problems regarding the legitimacy of private actors and ineffectiveness in service delivery, particularly to the poor and disadvantaged (Van Vliet 2011). Following from the above, sanitation governance arrangements in Rwanda and Uganda are ‘hybrid’. The governance arrangement in Rwanda can be described as predominantly ‘neo-developmental’ with some elements of ‘network’ whereas that in Uganda is predominantly a ‘network’ (Oosterveer 2009; Van Vliet et al. 2011).

**Article III**: Risk and benefit judgment of excreta as fertiliser in agriculture: An exploratory investigation in Rwanda and Uganda. Lead author, Nelson Ekane. This article directly addresses perceptions and attitudes of sanitation and hygiene related practices from a risk governance standpoint with specific emphasis on excreta management practices. This is an empirical account of how the nature and characteristics of excreta (faeces and urine) shape perception and drive individual judgment and decision-making regarding their productive use. This contributes to RQ 3.

In this article, I explore the assertion that people tend to judge risk emotionally. I argue that human excreta generally evoke repugnance because they
are marked with a negative image in people’s minds. This is part of the instinctive mechanism deterring people from coming into contact with substances or objects that can potentially contaminate and cause harm. In addition, I posit that negative emotional reactions towards excreta, faeces in particular, are so strong that they persist even after the substances have been properly treated and rendered innocuous. This indicates that individuals do not rely only on risk management information they receive concerning excreta and related risks but also depend, to an extent, on their feelings about these substances when making judgments and decisions regarding the purposes to which excreta used as fertilizer can be put and the level of exposure they can tolerate and manage. This is an important insight for risk governance which encompasses risk communication and risk management. Another key insight that can be discerned from this study is that the judgment of OD being highly risky and handwashing as highly beneficial by individuals from different backgrounds and settings is an indication that there is a common understanding of the risks and benefits of these practices (see Figures 1, 2, and 3 in article III).

**Article IV:** Carrots, Sticks, and Sermons: Household perspectives on sanitation and hygiene behaviours in Rwanda and Uganda. Lead author, Nelson Ekane. This article builds on theory and previous research and draws on empirical evidence from Rwanda and Uganda where different policy solutions are adopted to tackle the sanitation challenge – CHC in Rwanda and CLTS in Uganda. I argue that the choice of instruments depends on the influence the policy community has on the policy agenda. From a target population point of view, I show that a combination of instruments is perceived as effective in changing sanitation practices and hygiene behaviours irrespective of the approaches respondents are exposed to. This insight is important for policy efforts to eliminate negative externalities of OD and poor hygiene behaviours, and to reach a critical mass for universal compliance. Universal compliance is most likely achievable through approaches like CHCs partly due to their wider community outreach and the creation of a ‘culture of health’. However, universal compliance is not achievable in the short-term using only educational appeals, which are the most legitimate
instruments. Other instruments can trigger short-term desired changes but may not always be legitimate.

In terms of performance and effectiveness of CHCs and CLTS, differences are observed in study sites with CHC and CLTS interventions, including best performing CLTS (ODF\(^3\) declared) compared to sites with no CHC and CLTS interventions and poor performing CLTS (ODF not declared). Observed latrine (traditional pit latrine) coverage is generally higher in most of the study sites than the reported national latrine coverage and the reported WHO/UNICEF JMP improved sanitation coverage.

Regarding handwashing, more handwashing facilities are observed in intervention sites than in sites with no intervention. Similarly, more handwashing facilities are observed in the best performing CLTS site than in the poor performing CLTS site. This is the same for soap observed at the handwashing facility and water observed at the handwashing facility apart from Tororo district where slightly more households in the site with no intervention had water at the facility. Further, reported handwashing with water and soap is higher in all sites than the JMP estimates on basic handwashing with water and soap. Similarly, reported handwashing with water and soap is higher in intervention sites than in non-intervention sites. This is the same for best performing CLTS compared to poor performing CLTS. However, the reported water availability and poverty constraints may hamper proper handwashing practices (with water and soap) and construction and maintenance of latrines.

These findings are indications of the effectiveness of CHC and CLTS interventions. The difference between the best and poor CLTS cases underlines the importance of proper implementation of approaches.

Findings also reveal that there is a common understanding among respondent that provision of resources for construction and maintenance of sanitation and hygiene facilities is a shared responsibility and that they also have a key role to play. However, reported poverty and water availability related constraints, among other things, hamper the ability of respondents to fulfil this responsibility.

\(^3\) ODF – open defecation free
1.10. **Highlights of main findings and key contributions**

The points outlined below are important contributions in improving understanding of governance structures, processes, and gaps at different levels of society.

- Sanitation remains a low priority in national budgets despite proclamations of political commitments to tackle the problem. Policies by themselves do not solve problems. Implementation is the key to the success of policies. Policy fragmentation and coordination problems are rife as increasing numbers of non-state actors, notably multi-lateral organisations, local NGOs, and private operators take up key roles in filling the resource and service delivery gaps. As shown with examples from Rwanda and Uganda, the institutional environment and governance structures remain incapable of overcoming the challenges that the new modes of governance present. Following Williamson (2000), the basic institutional environment (‘formal rules of the game’) and the institutions of governance or governance structure (‘play of the game’) must be rightly set.

- Political leadership and commitment in combination with top-down authority and oversight as in the case of Rwanda ensures accountability and contributes to improved sector performance.

- How to get people to build and properly use latrines remains a key challenge. Subsidy, technology, and supply-driven approaches have produced sub-optimal results in addressing this challenge. This predicament can be explained by ‘forward mapping’ which views policy design and implementation from a top-down fashion (Elmore 1979-80, 604; 1985; Fiorino 1997) with multi-lateral organisations and other supranational actors setting the development agenda and vision - and promoting and financing different approaches. The dependence of national governments on external funding and the lack of national ownership and follow-up of programmes, particularly when external funding ends, compromise sustainability of programmes.

- Sanitation and hygiene are behavioural matters which are largely influenced by context and culture. These factors pose multiple barriers to behaviour change, particularly in the SSA context. Barriers to behaviour change relate to cognition (thought or understanding), attitudes (feelings or emotions),
and intentions to change (actions). Systematic analysis of these barriers is required to improve understanding of what actually encourages the behaviours and practices that are being discouraged. Practices and behaviours embedded in cultural norms, codes of conduct and religion change slowly over very long periods (Williamson 2000).

- Sanitation and hygiene are public problems that require collective action for the common good. This implies that self-interest must be limited if universal compliance is to be attained. This pertains to OD and other poor hygiene practices which constitute habits and routines that can be desirably changed with the use of appropriate instruments. A mix of instruments is needed to provide information about recommended behaviours, to initiate behaviours, and restrict, deter, and punish undesirable behaviours.

- Individuals at household and community levels remain key implementers of basic sanitation facilities as they enjoy discretion in determining what actions to take, what choices to make or which options to adopt, and whether to comply or not. ‘Backward mapping’ has the potential to include them in designing and implementing reforms, building consensus for change, and allowing for more discretion and flexibility (Elmore 1979-80, 604; 1985; Fiorino 1997).

1.11. Relevance and audience of research
The research gaps and questions addressed in this thesis are of relevance to the ongoing debate in the sanitation sector on what works on the ground. The insights are directed to sanitation and hygiene researchers, practitioners, decision-makers, and other experts at different levels of society.
2. Theoretical framework

2.1. Conceptual framework
Conceptually, I combine multi-level governance (MLG) framework, institutional, policy and implementation analysis, with an analysis of what motivates hygiene behaviour change at the community and individual levels.

2.2. Multi-level Governance – A conceptual framework
MLG has its origins in European Union policy making. The MLG concept considers policy and decision-making processes involving the simultaneous mobilisation of public authorities at different jurisdictional levels as well as that of dispersing authority to other actors. MLG is useful in explaining complex governance patterns (Hooghe and Marks, 2001) and is used differently in literature. Some authors use it as a theory to explain policy making and its outcomes in a multi-level context (Scharf 2010). Other authors use MLG as a conceptual framework for analysis (Zürn 2010). In this thesis, MLG is used as a conceptual framework for analysis as it offers a pragmatic approach to thinking and allows for the use of different theories to explain different governance phenomena. Moreover, Roll et al (2017) observe that little is known empirically about the extent to which research on implementation is situated across multiple levels of governance. This thesis is a worthwhile attempt to contribute to filling this gap.

2.3. Institutions
The word institution is ubiquitous and is used differently in different disciplines. Different perspectives explain the role institutions play in determining social and political outcomes (Table 1). Institutional forms result from social compromises that are then embedded in law, jurisprudence, social norms and conventions. Each of these institutional forms induces some specific behaviour (Boyer 2005). Included in the definitions of institutions are such features of the institutional context as the rules, the structure of the systems, the relationships between various branches of government and society, and the structure and organisation of actors (Thelen and Steinmo 1992). Thus, institutions enable interactions, coordination, cooperation, and information exchanges among agents and organisations (Amable, 2003).
In the context of this thesis, institution is examined as a source of both social order and social change drawing mainly on rational-choice institutionalist North (1990). North (1990) separates institutions into two sets of rules or norms, either formal (i.e. devised and designed by human beings) or informal (conventions and codes of behaviour), which actors generally follow, whether for normative, cognitive, or material reasons. From a planning perspective, Rader Olsson (2008) distinguishes between the institutional theory of how actors choose to interact (actors with choices), and how institutions structure interactions (structure of rules). I use institution as a structure of rules i.e. how institutions structure interactions between actors.

**Table 1** Institutional arguments

<table>
<thead>
<tr>
<th>Definition of institutions</th>
<th>‘Rational choice’ institutionalism</th>
<th>‘Cultural’ institutionalism</th>
<th>‘Historical’ institutionalism</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Formal and structural economic and political frames</td>
<td>Wider cultural and symbolic patterns</td>
<td>Formal and structural political, legal, societal frames backed up by coercive mechanisms</td>
</tr>
<tr>
<td>Origin</td>
<td>Rational interest of actors, calculus</td>
<td>Long term evolution – external reality</td>
<td>Nationally-shaped path dependencies – external reality</td>
</tr>
<tr>
<td>Logic of action</td>
<td>Rational interest of actors, calculus</td>
<td>Appropriateness</td>
<td>Constraint</td>
</tr>
</tbody>
</table>

Source: Djelic and Quack (2003, 59)

Institutions change with time (Giddens 1984) and shape the way societies evolve. As agents of institutional change, organisations interact with institutions in such a way that as organisations evolve, they alter institutions (North 1990). Institutional change can occur in several different ways. According to North (1990), institutional change naturally occurs incrementally rather than in a discontinuous manner. Campbell (2004) adds that institutional change could either be evolutionary (slow, step-wise, continuous, prone to inertia) which results from the process of path dependence, or revolutionary (rapid and discontinuous). Pierson (2004) suggests that when institutions have been in place for a long time, most changes become incremental or evolutionary. Further, Williamson (2000, 597) proposes four levels of institutional change in a multi-level framework which are useful in analysing and explaining how institutions such as those governing
sanitation, hygiene and human behaviour emerge and are sustained. Informal institutions such as norms, taboos, customs, traditions, religion, and codes of conduct fall under Level 1. These institutions are evolutionary, spontaneous in origin, change very slowly (centuries to millennia), prone to inertia for functional reasons, embedded in society or have a lasting grip on society. Level 2 consists of the institutional environment and formal institutions (‘rules of the game’) (North 1990). Executive, legislative, judicial, and bureaucratic functions of government fall under this level. These are also slow changing (decades to centuries). Level 3 consists of the institutions of governance i.e. governance and policy framework as a structure of society (‘get the governance structure right’). Change here is revolutionary or rapid (between 1 to 10 years). Level 4 involves resource allocation and employment. This changes continuously. Lundgren (2017, 26) reframed Level 4 to ‘practice’ which encompasses habits, behaviours, and routines. These are formed continuously in a process called habituation (Alvesson and Sköldberg 2009), and depict practices such as OD and handwashing.

2.4. Choice and targeting of policy instruments
Much has been written on the social construction of public policy (Linder and Peters 1989; Schneider and Ingram 1990, 1993; Lascoumes and Le Galès 2007; Weaver 2014). According to Linder and Peters (1989) and Weaver (2014), much of what constitutes public policy is socially and politically constructed. Schneider and Ingram (1993, 334, 335, 342, 345) also contend that social construction influences policy agenda and the selection of policy instruments, as well as the rationales that legitimise policy choices. This assumption is based on the classical rational actor model which generally underlies policy thinking and assumes that people can make reasoned judgments and decisions guided by personal utility. This line of thinking, however, does not take into account the fact people often misperceive, misallocate, and mispredict things. The behavioural perspective has been proposed to cater for this shortcoming and can be used for explaining the gap between information and understanding, intention and action (Barr et al. 2013).

There are different perspectives on policy instruments. Kassim and Le Galès (2010) distinguish between the functionalist perspective that is dominant in the literature and the political sociology perspective. According to the functionalist
perspective, effectiveness guides the selection of instruments which are assumed to be natural and readily available for the government. On the other hand, the political sociology perspective emphasises the social and power dimensions underlying the choice of instruments (Schneider and Ingram 1993; Lascoumes and Le Galès 2007; Kassim and Le Galès 2010). Further, Kassim and Le Galès (2010) argue that in the functionalist approach, the choice of instruments and mode of operation are treated only superficially whereas in the political sociology approach, the choice and mode of operation have implications for social and political interactions and produce outcomes that are independent of the intended goals.

From a sociological point of view, policy instruments are defined by Lascoumes and Le Galès (2007: 4) as “technical and social devices that organise specific social relations between the state (‘governor’) and those it is addressed to (‘governed’), according to the representations and meanings it carries. It is a particular type of institution, a technical device with the generic purpose of carrying a concrete concept of the politics/society relationship and sustained by a concept of regulations”. This definition is in line with that of Hood (1986); Hall (1993); Linder and Peters (1990), and is the perspective taken in this thesis.

Following from the above definition, policy instruments use different mechanisms for achieving public policy goals (Linder and Peters 1989, 39; Schneider and Ingram (1990, 527), and every instrument constitutes knowledge about social control and ways of exercising it (Kassim and Le Galès 2010, 6). As institutions, instruments structure the behaviour of actors, dictate the allocation of resources among actors, and allow collective action to stabilise. This implies the choice of instrument is a political issue and hence a potential source of political conflicts, especially in situations where public policy is defined through its instruments (Lascoumes and Le Galès 2007, 8, 9). This underlines the importance of considering the ideas upon which policy instruments rest as well as the exercise of power and influence producing policy (Schneider and Ingram 1990). Following the above line of thinking, Schneider and Ingram (1993, 334) add that the support, targeting, and adoption of a certain instrument will be determined by the most powerful actors. As a consequence, instruments privilege certain actors and interests and drive a certain representation of problems (Lascoumes and Le Galès
Schneider and Ingram (1993, 334) refer to this as social construction of target populations.

Following the social constructivist line of thinking, Schneider and Ingram (1993) argue that the social construction of target populations is the cultural characterisations, categorisation or popular images of persons or groups whose behaviour and well-being are affected by public policy. Building on the work of Schneider and Ingram to elucidate compliance barriers to behaviour change, Weaver (2014) reiterates that the boundaries of target populations, the compliance and enforcement regimes that are put in place to secure desired behaviour, and levels of compliance that are considered acceptable are all socially and politically determined constructions reflecting the social views and political power of target groups and their political allies. Pertaining to sanitation and hygiene, at the global level, the sanitation SDG 6 target 6.2 specifies certain groups or categories – women, girls and the ‘vulnerable’ as key targets for policy.

The choice of policy instruments has been shown to depend upon the national context and style. Context influences the choice of instruments in different ways. Two important ways this happens are the institutional, organisational and systemic setting in which decisions are made and the problem situation that leads to the choice of instrument (Linder and Peters 1989). Subjectivity in the choice of policy instruments is well reported. Linder and Peters (1989, 35, 51) point out that instruments often represent the values of decision-makers and their policy advisors. They add that how these actors perceive the instruments conditions their views of problem situations, biases their expectations of performance, and shapes their choices. This raises the issue of the locus of power which Rothschild (1999, 28) argues is actually with individuals in a free-choice society. This implies that if behaviours that are sought are not perceived to be of self-interest to target populations, then desired changes may not be realised. The above assertions raise questions regarding legitimacy, which involves the degree of actual support a government may realise for its choices because the actors involved, including the target population, perceive them as corresponding to their own views, feelings, or objectives. This is the stance taken by Bemelmans-Videc (2007, 8) and van der Doelen (2007, 131) who stress that acceptance is crucial for actual effectiveness of a policy or programme.
3. Overview of the research field

3.1. Governance gap surrounding sanitation
Governance gaps are analysed from different perspectives in the literature – from a political economy point of view (WSP 2011; ODI 2011a, b; van Vliet et al. 2011; ODI 2012; Ekane et al. 2014; Jiménez et al. 2014; GLAAS 2014; WGF 2015; WSP 2015); a behavioural science point of view (Curtis and Cairncross 2003; Jenkins and Curtis 2005; Fewtrell et al. 2005; Mosler 2012 Freeman et al. 2014), and a planning point of view (McFarlane 2008a, b, c; Chalfin 2014; Desai et al. 2015; Letema et al. 2014; McFarlane and Silver 2016). The articles that make up this thesis contribute either directly or indirectly to these strands of literature. I elaborate on these where appropriate in the remainder of this overview.

3.1.1. Political economy perspective (articles I, II and IV)
In the context of sanitation, political economy is defined by WSP (2011: 11) as the social, political, and economic processes and actors that determine the extent and nature of sanitation investment and service provision. Generally, some of the perpetual development challenges highlighted by Caiden and Wildavsky (1974) continue to plague many sectors in the region, with the sanitation sector being no exception. These include general poverty characterised by lack of money, a capable workforce, useful data, essential information and governmental capacity to mobilise existing resources especially at the local government level where resource constraints are rife (Wunsch 2001). GLAAS (2014) emphasise the funding, monitoring and evaluation, and enforcement gaps hindering full implementation of national sanitation plans and programmes in several countries. Recent global estimates show a tremendous gap in the financing needed to meet the water supply, sanitation, and hygiene SDG 6 targets, with capital investment needs alone three times higher than current investment levels (Hutton and Varughesen 2016). Moreover, approaches for implementing sanitation and hygiene behaviour change programmes and projects have been predominantly supply or technologically-driven (WSP 2010; Jewitt 2011; Burns and Worsley 2015), and subsidy-driven or donor-dependent (Seppälä 2002; WSP 2010; ECA 2012; Burns and Worsley 2015). These have ingrained different forms of path dependent behaviour among actors at different levels of society (Ekane et al. 2014) wherein more emphasis is being
placed on infrastructure provision than on supporting sustainable service delivery (GLAAS 2014) including hygiene behaviour change.

While the policy implementation related gaps at different governance levels are known, much is still to be done to improve understanding of how these can be addressed or tackled in different circumstances or contexts (Ekane et al. 2018). In addition, there is a need to ascertain which policies, institutional arrangements, approaches and instruments contribute to a desired and sustained increase in coverage of sanitation facilities and change in hygiene behaviours (Ekane and Näsman 2018). Curtis et al. (2011) emphasise the need to design, manage, and rigorously evaluate large-scale hygiene promotion programmes. Also, WGF (2015) highlights the need to combine approaches targeting technology and design with those targeting social issues and behavioural change.

New modes of sanitation governance are characterised by the state acting through non-state actors in flexible and inclusive state-citizen interactions. Oosterveer (2009) and Van Vliet et al. (2011) refer to these modes of governance as ‘network states’ which acknowledge the limitation of traditional modes of command-and-control mechanisms in contemporary society. Even though these modes of governance include stakeholder participation and enable context-specific solutions, they are institutionally weak and non-state actors face problems of legitimacy (Van Vliet et al. 2011). In response to implementation failures attributable to the proliferation of non-state actors, coordination challenges and flexible rules, the need for policy instruments that increase or re-establish the capacity of the state to govern, steer or guide is emphasised (Mayntz 2006; Le Galès 2013, 145). This reflects the notion of the ‘neo-developmental state’ with the active role of government which Oosterveer (2009) and Van Vliet et al. (2011) argue is necessary for the provision of basic sanitation services, particularly to the poor and underprivileged.

3.1.1.1. Global visions and local means and actions
There has been woeful negligence regarding issues of sanitation and hygiene in SSA, which has nevertheless, in recent years, been redressed at the global, regional, and national levels. At the global level, there was initially no specific target for sanitation and hygiene within the MDGs when they were adopted in 2000.
Sanitation was, however, included on the agenda two years later at the United Nations (UN) World Summit on Sustainable Development in Johannesburg, where Target 10 of MDG 7 was expanded to address both water and sanitation. The sanitation target was to halve the proportion of people without access to basic sanitation facilities by 2015. Even though there was no specific mention of hygiene in this target, it was implicit in the definition of sanitation.

In 2002, a commitment was made at the regional level to strengthen intergovernmental co-operation to redress the water and sanitation crisis in the entire African continent. This was mainly championed by ministers for water in 41 African countries and resulted in the creation of the African Ministers Council on Water (AMCOW) (Cross and Coombes 2014). Increasing interest in providing sanitation facilities and services and promoting hygiene behaviour change and the recognition of the implications for human development culminated in 2008 being declared the International Year of Sanitation (IYS) by the UN. During this same year, governments of 32 African countries signed the eThekwini Declaration (Ministerial Statement 2008) at the AfricaSan conference on sanitation and hygiene under the auspices of AMCOW. This declaration was an expression of the commitment to prioritise and support efforts in terms of policies, leadership, coordination, funding, monitoring and evaluation, and capacity development to improve water and sanitation in the entire continent. Countries were urged to make public budgetary allocations for sanitation of at least 0.5% of Gross Domestic Product (GDP). Further, the 2030 Agenda on ‘The world we want’ was adopted in September 2015, setting the ambitious target of universal access to sanitation among the SDG.4

A major part of the problem has been to have sanitation included within water supply. Again, in this arrangement, water supply generally takes precedence over sanitation and thus receives more attention and resources (Elledge 2003; Black and Fewcett 2008; Galan et al. 2013). Consistent with the unequal policy attention paid to water and sanitation, progress towards the provision of sanitation facilities perpetually lags behind water supply (WHO/UNICEF 2017). There are, however, efforts to disentangle sanitation from water supply. South Africa, Ghana and Uganda were some of the first countries in the region reported to have raised

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the profile of sanitation in national policy (WEDC 2005). Many other countries have followed suit over the years. Galan et al. (2013) report from studies using country level data in 34 countries in SSA that 18 countries had national sanitation policies prepared by the government and endorsed by parliament. A number of countries have prepared draft sanitation policies which are pending endorsement by parliament. For instance, Rwanda has a combined water and sanitation policy but has recently prepared a separate sanitation policy which is pending endorsement by parliament. Tanzania also has a draft sanitation policy pending endorsement by parliament (Ekane et al. 2016b).

3.1.1.2. Rural-urban divide in service delivery
The majority of people without improved sanitation and hygiene conditions live in rural and peri-urban areas (WSP 2010; WHO/UNICEF 2017) where on-site sanitation facilities are predominant. These consist mainly of traditional pit latrines of varying standards (Morella et al. 2008; WHO/UNICEF 2017: 16) with no direct connection to sewerage. Much of the government effort has been on supporting heavily subsidised latrine-building programmes that are either poorly conceived or poorly targeted (WSP 2010; GLAAS 2014; Vernon and Bongartz 2016) and usually do not meet the needs of the poor and other vulnerable groups. GLAAS (2017: 31) report from studies in 13 countries that non-household expenditure for water, sanitation and hygiene in urban areas accounts for more than three times the expenditure in rural areas despite lower access to these services in rural areas. The report further specifies that a large proportion of government allocations and aid to the sector is directed to large urban infrastructure projects. This partly explains the disparity between rural and urban sanitation service coverage. Despite the urban bias, service delivery in peri-urban settlements remains problematic for government agencies due to factors such as increasing population, uncertain land tenure, and rapid land use changes (Allen 2010, 28). The urban bias is not restricted to basic service delivery but is also reflected in national policies at the macro-economic level (Tannerfelt and Ljung 2006, 37).

3.1.2. Human rights perspective
At the global level, the UN General Assembly explicitly recognised the human right to water and sanitation on 28th July 2010, through Resolution 64/292, and
acknowledged that clean drinking water and sanitation are essential to the realisation of all human rights. Yet again, sanitation was not sufficiently explained in this resolution. Ultimately, in December 2015, the right to sanitation was emphasised as separate from that of water due to the distinct features of sanitation and the implications these have for human well-being, dignity, and development (OHCHR 2015). However, the interpretation of the right to sanitation in terms of the role of the state and individual households in providing sanitation facilities is an area that needs further clarification.

3.1.3. Behavioural science perspective (articles III and IV)

3.1.3.1. Sanitation and hygiene are behavioural matters
There is increasing recognition that sanitation and hygiene are principally behavioural issues which are influenced or shaped in various ways by different socio-economic and cultural factors in different contexts (Dreibelbis et al. 2013). As a result, emphasis is increasingly being placed on ‘software’ (hygiene behaviour) (Peal et al. 2010) and demand-driven approaches (McGranahan 2013) to understand mechanisms underlying human thinking, decision-making, perception, behaviour and practices (Curtis et al. 2009, 2011; Mosler 2012; World Bank 2015; Ekane et al. 2016a); to change behaviour (Jenkins and Scott 2007; Curtis et al. 2011; Mosler 2012; Dreibelbis et al. 2013; World Bank 2015; Aunger and Curtis 2016; Ekane and Näsman 2018), and to promote compliance to prescribed standards, guidelines and norms (Haas and Larson 2007; Ekane 2013; Freeman et al. 2014).

The knowledge gap reported by Curtis and Cairncross (2003) is still evident today, which is that the most effective strategies in encouraging people in the developing context to install toilet facilities and to adopt proper hygiene behaviours are not well known. Jenkins and Curtis (2005) report that public health programmes designed to improve sanitation and hygiene in this context have consistently framed promotional messages in terms of faecal-oral disease prevention and largely failed to motivate changes in sanitation and hygiene behaviour. Scott et al. (2007) make a similar assertion that efforts to change behaviour based on biomedical health education have met with limited success. Jenkins and Curtis (2005) identified drivers for latrine adoption in rural Benin to
be prestige, well-being, and situational goals. Health considerations played only a minor role and had little if anything to do with preventing faecal-oral disease transmission. Drivers varied with gender, occupation, life stage, travel experience, education, and wealth, and reflected perceptions of the physical and social geography of the village, linked to availability of open defecation sites, social structure, road access, and urban proximity.

Intuitively, promotional messages seem to be one of the most powerful framing mechanisms available to ensure compliance. But why have these not been so effective and which options are needed to improve effectiveness? Carter (2015) highlights that the drivers of behaviour change are often more to do with individual emotions and social status than cold hard reasoning about health benefits. Barr et al. (2013) also point out that people face challenges processing available information due to different factors, namely limitations in attention, understanding, perceived relevance, misremembering, or misforecasting its impact. These highlight constraints or barriers pertaining to cognition, resources and autonomy (Weaver 2014, 2015).

3.1.3.2. Institutions governing sanitation practices and hygiene behaviour
Sanitation practices and hygiene behaviours are regulated in society in different ways. Formally, these are covered in national policies and enforced through regulations, guidelines and standards which people are supposed to comply with. According to Barr et al. (2013) these formal institutions shape how people think and what they do, hence their behaviour. However, even though not mentioned in the definition of institutions that Barr et al. (2013) present, informal socio-cultural and traditional norms also prevail and may differ from one context to another (Cairney and Heikkila 2014). These norms are ubiquitous in the SSA context especially with regards to sanitation and hygiene. Norms constitute a key element of behaviour change interventions aimed at achieving universal compliance (Reynolds et al. 2015). Formal laws and regulations and informal norms and codes of conduct stipulate how people should behave and prescribe certain actions and practices considered safe, correct and acceptable in society as well as those that are unsafe and not recommended, and may contradict or complement each other (Ekane et al. 2012).
In the SSA context, perceptions of dirt and disease tied to norms, beliefs and taboos are rife and suggest different kinds of behaviours and practices from that prescribed in laws and regulations (Ekane et al. 2012). These pose serious implications for individual and collective decisions, gender equality and inclusion, and are exacerbated by widespread cognitive, autonomy and capacity constraints.

I highlight just a few of the numerous socio-cultural and traditional beliefs, norms and perceptions pertaining specifically to dirt, cleanliness and the act and place of defecation. Van der Geest (1998) presents several beliefs and practices related to dirt and cleanliness in the Akan culture in Ghana. Regarding defecation and other personal habits, the Akan people reserve their left hand for activities perceived as dirty, such as cleaning oneself after using the toilet, holding the penis while urinating, cleaning dirty things, blowing one's nose, etc. Also, people commonly use euphemistic expressions in public to hide their intention to go and defecate. Regarding traditional planning norms, the Bakossi tradition in Cameroon dictates that the latrine (‘nda ntom’) must be placed outside when building the traditional Bakossi house (‘nda chum’). This is because people find it uncomfortable to defecate in the house when they know other people are in the same house. The Bakweri people in Cameroon call the latrine ‘woloa’ which means ‘go out’ or ‘a special place’. According to the Bakweri tradition, defecation must be done far from the dwelling place. This is similar to what is reported in Rwanda – defecation inside or very close to living space is not allowed. In the Rwandan culture, latrines signify hygiene, which is ‘isuku’ in the local language and there are specifications regarding the location of the latrine within the compound. For instance, latrines should be constructed outside the fence and away from the house and kitchen, specifically at the exit of the compound (Ekane et al. 2012). Regarding defecation and other personal habits, the following were stated in group discussions in Uganda: “if a child’s faeces are dropped in a toilet, the child will not develop teeth”; “pregnant women should not use a toilet because they might miscarry”; “mother and daughter or son-in-law are not supposed to share

These beliefs and perceptions were gathered in Muea, Cameroon during a pilot study sponsored by the International Foundation for Science (IFS).
latrines”. In Rwanda, faeces are called ‘amazirantoki’, which means “do not touch” or “untouchable”.

Some of the above-mentioned beliefs, norms, and taboos indirectly perpetuate inequality and can be considered irrational in certain circumstances, yet they persist. Take for example situations where people, particularly women, girls, children, people with disabilities and the elderly, have to brave darkness to visit the latrine outside at night, or where the only decent latrine in the compound is reserved exclusively for the father of the household. Clearly, it is difficult to get people to comply with injunctive norms (what people see as the right thing to do - involving perceptions of which behaviours are typically approved or disapproved) when descriptive norms (what people usually do - involving perceptions of which behaviours are typically performed) suggest different behaviours (Cialdini 2003; Cialdini and Goldstein 2004; also see Weaver 2014).

3.1.3.4. Comfort, convenience, and cleanliness
Historically, the institutionalisation of hygiene had an immediate impact on the bathroom since sanitary reformers were convinced that when safely and properly constructed, bathrooms provided the facilities required to keep disease at bay (Shove 2003). This of course applies also to toilets. Notions of purity and pollution (Douglas 2002), along with hygiene habits and culture or religion greatly affect the way different sanitation solutions are taken up – or not. An increasing number of sanitation programmes exploit emotional appeals such as disgust and pride to trigger changes in hygiene behaviour. Barriers to changing hygiene behaviours or those in relation to the environment might include coping devices, established cultural models, real and/or perceived inconveniences, as well as social pressures, including stigma and ridicule (Thompson 2004). Massie and Webster (2013) stress that hygiene promotion should take a participatory form, rigorously identifying and working with existing beliefs.

3.1.3.5. Determinants of sanitation and hygiene behaviour change
A number of theoretical frameworks have been proposed for analysing the determinants of sanitation and hygiene behavioural change. Perhaps one of the earliest attempts in this field is by Curtis et al. (1995) who present a conceptual framework for categorising factors that together constitute potential determinants
of hygiene behavior. These include individual and external determinants of hygiene behaviour as well as how these are influenced by the social and physical environment. They argue that changes in the physical and social environment will lead to behaviour change. Further research by Curtis et al. (2009) specifically on handwashing behaviours reveals that three separate but interacting mental processes shape behaviour. These include planning, motivations and habits, and are in turn shaped by environmental determinants which are biological, social and physical.

Mosler (2012) outlines an approach to change behaviour at the individual level consisting of five factors - risk, attitude, norms, abilities, and self-regulation (RANAS) for behaviour change. The RANAS model is limited to the micro-level and focuses mainly on changes that households can make themselves and thus cannot be used to analyse institutional, economic, political and environmental changes at meso and macro-levels.

Not directly designed for sanitation and hygiene but for understanding and analysing all types of behaviours and compliance barriers, Weaver (2014) presents a comprehensive framework for analysing barriers to behavioural change at different levels of society. In this framework, specific emphasis is placed on resource and autonomy barriers, heterogeneity of the target population, multiple barriers to compliance, and problems that arise when a complex and ongoing set of actions is required to be in compliance. Pertaining to the causes of compliance gaps, Weaver’s framework outlines underlying barriers in three categories:

- Problems with external perceived incentives to comply, which include incentive and sanction, monitoring, and enforcement problems. This concerns individuals who don’t need to comply;
- Willingness to comply, which includes problems related to information and cognition, attitudes and beliefs, and peer effects. This concerns individuals who don’t want to comply;
- Capacity to respond to policy, which includes resource and autonomy problems. This concerns individuals who can’t comply.

All the above frameworks are relevant in analysing and understanding the determinants of behaviour change. Mosler’s model is limited to changes that can be
made at the individual level. The frameworks of Curtis and Weaver are broader in scope and include factors beyond the individual level. However, from a governance perspective, the framework of Weaver is more elaborate in categorising various groups of individuals and their barriers to behaviour change, and outlines ways to comprehensively tackle them at different levels of society.

3.1.3.6. Community approaches to sanitation
A variety of community approaches to sanitation are widely promoted, mainly by international and donor organisations, and implemented across SSA with the intention to create group endorsement for new sanitation and hygiene norms (UNICEF 2009; World Bank 2015).

I highlight some approaches here that are widely promoted and implemented - CLTS, CHCs, and SanMark. While approaches such as CLTS (Kar 2005), and CHCs (Waterkeyn and Cairncross 2005) are making positive impacts in curbing OD, others such as SanMark have been successful in some areas in raising households' demand for improved and functional sanitation facilities (Jenkins and Scott 2007). Broadly, SanMark uses market-based approaches to create demand for toilets and strengthen supply by building capacity of the local private sector. With CLTS, community members are asked, usually by facilitators from outside the community, to map areas where they defecate in their community. This mapping exercise is followed by processes or demonstrations wherein community members are made to understand the pathways of disease transmission and the health implications of their defecation habits and practices (Kar 2005; Mehta and Movik 2010). During these processes, shame and disgust are elicited to deter people from defecating in the open. This approach is widely implemented in many parts of the developing world and has been successful in making some communities open defecation free (ODF). However, the use of shame in this process and sustainability considerations after ODF status is declared have been highly questioned. CLTS is not implemented in Rwanda mainly because of the former part of these shortcomings. This is, however, not an issue in some other countries like Uganda where CLTS is widely rolled out. CHCs have been widely implemented, so far mainly in Zimbabwe (Waterkeyn and Cairncross 2005; World Bank 2015) and recently in Rwanda where they are supported by the 2009 CBEHPP within the
Health Sector Strategic Plan of the Ministry of Health (MoH). This national programme principally targets hygiene and health with the objective of creating a “culture of health” characterised by hygiene behaviour changes that are both sustainable and cost effective (MoH 2010).

Both CLTS and CHCs depend on collective action, peer pressure, local leadership, and a strong community structure for change to happen. Collective action is defined as coordinated action of two or more individuals to generate collective resources (Olson 1965). However, unlike with CLTS that addresses mainly open defecation, CHCs have been successful in building consensus among community members around a set of interrelated issues important for the general community well-being – sanitation and hygiene being just some of them. CHCs are usually driven or championed by female members from within the community. Trust among the members of the club is a key factor for success. This is characteristic of social capital which is a feature of social organisations that facilitate action and cooperation for mutual benefit (Putnam 1993), and exists in all parts of society (Westlund 2006).

As shown above, CLTS, CHCs and SanMark differ in their design, methodology, and expected outcome but can, despite this, complement each other in helping individuals and entire communities out of OD and up the sanitation ladder. Further, these approaches are difficult if not impossible to implement without the active involvement of already existing groups and networks as entry points in communities. An example of such groups is the village savings and loans association (VSLA) and village health teams (VHTs) in Uganda and the community health workers (CHWs) in Rwanda. These groups serve as vital links between the community and stakeholders outside of it, and are often effective in channeling resources to communities.

3.1.4. Sustainable sanitation systems perspective (article III)
Sustainability has become a buzzword in the sanitation sector. According to the Sustainable Sanitation Alliance (SuSanA), a sustainable sanitation system should be economically viable, socially acceptable and, technically, institutionally

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6 SuSanA is an international network of experts and practitioners in sanitation, hygiene and related fields. This network unifies all members to work along the same lines towards creating sustainable sanitation for all.
appropriate, and should protect the environment and the natural resources. System is also a keyword and encompasses the chain of events from the collection, transport and treatment to reuse and/or final disposal.

My emphasis here is on the productive use of human excreta and wastewater in agriculture. The use of human excreta in agriculture presents both benefits and risks (WHO 1989, 2006a, b). Human faeces and urine are known to be rich in organic matter and nutrients respectively (Polprasert 2007). When properly and safely managed in closed loop systems, human faeces and urine have the potential to improve soil quality by adding organic matter and nutrients to the soil to boost crop productivity. Such benefits are particularly evident among smallholder farming populations in rural and peri-urban settings where the production, distribution, and application of manure to farms is a vital part of smallholder arable farming. However, the hygiene and safety aspects of practices involving the use of human faeces and urine in agriculture are not always put into practice (Cofie et al. 2005; Knudsen et al. 2008; Pham-Duc et al. 2014). When such systems are poorly introduced and managed, they pose a severe threat to human and environmental health and may potentially exacerbate the situation in areas where water and hygiene are inadequate and basic sanitation facilities are dysfunctional.

Table 2 Articles contribute to different strands of literature

<table>
<thead>
<tr>
<th></th>
<th>Paper I</th>
<th>Paper II</th>
<th>Paper III</th>
<th>Paper IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political economy</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Behavioural sciences</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Planning</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>
4. Context

4.1. The Sub-Saharan Africa context
Context and culture are known to play a powerful role in human behaviour. This implies human behaviour is a function of both the individual and the situation (Shafir 2013: 2; Barr et al. 2013: 440). Poverty, uncertainty (Lane 1999; Handley et al. 2009; Estache and Wodon 2014, 3) and different forms of intersecting inequalities (ISSC, IDC and UNESCO 2016) and informality are rife in different parts of SSA. These add to the already mentioned socio-cultural and traditional beliefs and norms that shape sanitation practices and hygiene behaviours.

4.2. Rationale for focusing on Rwanda and Uganda

Figure 6 Map of East African Community showing Rwanda and Uganda

Source: United Nations 2012
As can be seen from Figure 6, Rwanda and Uganda are neighboring countries in Central and East Africa respectively. These countries have a number of factors in common: they are members of the East African Community (EAC) and are signatories of the eThekwini Declaration on sanitation and hygiene (Ministerial Statement 2008); sanitation is a salient issue in both countries and is high on the national development agenda as indicated in the poverty reduction strategic papers; numerous policy and institutional reforms, in particular clarification and reassignment of roles and responsibilities for sanitation and hygiene are common to both countries; both countries have predominantly rural populations with large numbers lacking basic sanitation; levels of inequality and informality are high in both countries; levels of economic development are quite similar - GDP (PPP) per capita of US$ 1762 for Rwanda and US$ 1851 for Uganda7, both countries have a history of armed conflict and political struggle and are ruled by strong and long-serving presidents in a benign or semi authoritarian political set-up but with incorporated democratic innovations in varying degrees (Tripp 2004, 4; Sjögren 2007; Straus and Waldorf 2011, 27; Purdeková, A. 2011; Sommers 2012).

The countries also differ in a number of ways: progress records towards the sanitation target of the MDG; trends in population growth since 1990; urbanisation trend (see Table 3); size; different growth rates - GDP annual growth of about 7% for Rwanda and 5% for Uganda.8

The much more densely populated Rwanda is home to over 11 million people on 26,338 km² while Uganda currently houses over 39 million people on 241,038 km². Population growth has been very rapid in Uganda where it has more than doubled in the past 25 years. During this same period, Rwanda has experienced more moderate population growth. Worth mentioning is the civil war and genocide which ravaged the Rwandan economy and population in 1994. In terms of progress in sanitation coverage (see Table 3), great strides in improving access to sanitation facilities have been made in Rwanda, particularly in the rural areas. Urban sanitation coverage has actually not changed significantly in either country during this period. Further, the trends in the practice of OD are quite different in each country. While there has been a decrease in OD in both countries

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7 GDP (PPP) per capita, World Bank 2017.
since 2000, the practice has almost been eradicated in Rwanda. On-site sanitation facilities are predominant in rural and urban settings in both countries, and mainly consist of pit latrines of varying standards (Morella et al. 2008; WHO/UNICEF JMP 2017: 16) (see pictures on pages 55, 56, and 57). Rwanda is listed as one of the countries in the region that recorded considerable progress during the MDG era (WHO/UNICEF JMP 2017: 88). A unique feature is that rural sanitation coverage is deemed higher than the urban coverage (WHO/UNICEF 2017: 88). Uganda also shows some improvements albeit lower than that in Rwanda.

Table 3 Trends in access to improved sanitation in Rwanda, Uganda, and SSA region

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Population (x 1000)</th>
<th>National % urban pop.</th>
<th>National At least basic Limited (shared) Unimproved Open defecation</th>
<th>Rural At least basic Limited (shared) Unimproved Open defecation</th>
<th>Urban At least basic Limited (shared) Unimproved Open defecation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rwanda</td>
<td>2000</td>
<td>8,022</td>
<td>15</td>
<td>44 9 42 4 6 47 5 57 27 14 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>11,610</td>
<td>29</td>
<td>62 14 22 2 64 9 25 2 57 27 14 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uganda</td>
<td>2000</td>
<td>23,758</td>
<td>15</td>
<td>11 58 15 14 7 62 17 29 43 26 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>39,032</td>
<td>14</td>
<td>14 60 6 17 9 67 7 28 43 27 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>962,287</td>
<td>28</td>
<td>28 32 23 20 9 38 32 41 32 19 8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


WHO/UNICEF JMP (2017: 16, 27) considers facilities that hygienically separate human excreta from human contact as improved sanitation. As of 2017, the WHO/UNICEF JMP categorises improved facilities into limited, basic, and safely managed services (depending on how excreta is managed). Improved facilities that were hitherto referred to as shared are now called limited. The WHO/UNICEF categories of improved sanitation facilities are outlined in Box 1.
Box 1 WHO/UNICEF categories of improved sanitation facilities

<table>
<thead>
<tr>
<th>Categories of improved sanitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet sanitation</td>
</tr>
<tr>
<td>• Flush/pour flush toilet connected to</td>
</tr>
<tr>
<td>sewers</td>
</tr>
<tr>
<td>• Septic tank or pit latrines</td>
</tr>
<tr>
<td>Dry sanitation</td>
</tr>
<tr>
<td>• Ventilated improved pit latrine (VIP)</td>
</tr>
<tr>
<td>• Pit latrine with slab</td>
</tr>
<tr>
<td>• Composting toilet</td>
</tr>
</tbody>
</table>


The WHO/UNICEF JMP data differs from national data (see Table 5). This is partly explained by differences in what is considered an improved sanitation facility at the national level. For instance, shared sanitation facilities which include different communal or public sanitation arrangements were considered unimproved in previous JMP reports. These are common in urban and peri-urban areas in most countries in the region. The recent change in categorisation of shared sanitation facilities as improved by JMP may partly redress this difference. Further, the monitoring process has generally been criticised for emphasising numbers of facilities rather than function of facilities. A functional sanitation ladder has been proposed as a solution to this shortcoming (Kvarnström et al. 2011). This has been partly addressed in the new JMP categorisation which now takes safe management of excreta into consideration. Also included in the 2017 JMP report are hygiene estimates on the coverage of basic handwashing facilities with soap and water. As Table 4 shows, basic handwashing is generally quite low in both countries, particularly in the rural areas (WHO/UNICEF JMP 2017: 5).
Table 4 Hygiene estimates in Rwanda, Uganda, and SSA region

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Population (x 1000)</th>
<th>% urban pop.</th>
<th>National Basic (with soap and water)</th>
<th>Limited (without water or soap)</th>
<th>No facility</th>
<th>Rural Basic (with soap and water)</th>
<th>Limited (without water or soap)</th>
<th>No facility</th>
<th>Urban Basic (with soap and water)</th>
<th>Limited (without water or soap)</th>
<th>No facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rwanda</td>
<td>2015</td>
<td>11,610</td>
<td>29</td>
<td>5</td>
<td>9</td>
<td>86</td>
<td>2</td>
<td>9</td>
<td>88</td>
<td>13</td>
<td>7</td>
<td>80</td>
</tr>
<tr>
<td>Uganda</td>
<td>2015</td>
<td>39,032</td>
<td>16</td>
<td>8</td>
<td>22</td>
<td>71</td>
<td>6</td>
<td>22</td>
<td>72</td>
<td>15</td>
<td>21</td>
<td>64</td>
</tr>
<tr>
<td>SSA</td>
<td>2015</td>
<td>962,287</td>
<td>38</td>
<td>15</td>
<td>22</td>
<td>63</td>
<td>10</td>
<td>23</td>
<td>67</td>
<td>24</td>
<td>20</td>
<td>55</td>
</tr>
</tbody>
</table>


According to the National Institute of Statistics in Rwanda (NISR 2015), access to what is considered ‘improved’ sanitation in Rwanda is 83.4% with 93.5% and 81.3% in urban and rural areas respectively (see Table 5). An ‘improved’ sanitation facility in Rwanda is limited to flush or pit latrine with a solid slab.

In Uganda, access is defined in terms of ‘basic’ sanitation. National sanitation coverage is measured by categories - urban for on-site and sewerage coverage and rural coverage which is mainly characterised by pit latrines of varying standards. There are no figures for national coverage. Urban on-site sanitation includes pit latrines and septic tanks that are not connected to the national water and sewerage system. The sewerage system serves only about 6% of the population (pers. comm. David Mukama, Uganda Sanitation Fund hosted by Ministry of Health) (see Table 5).

Table 5 National sanitation coverage in Rwanda and Uganda (%)

<table>
<thead>
<tr>
<th>Access to ‘improved’ sanitation facility in Rwanda¹</th>
<th>National</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>83.4</td>
<td>93.5</td>
<td>81.3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Access to ‘basic’ sanitation facility in Uganda²</th>
<th>National</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA</td>
<td>84.6</td>
<td>79</td>
<td></td>
</tr>
</tbody>
</table>

²Sector Performance Report (SPR), Ministry of Water and Environment (MWE) (2016) in Uganda
NA: Not applicable
The pictures below show only some common latrine structures in Rwanda and Uganda. Flush toilet systems which are common in urban settings are not represented here.

Pictures of latrines and handwashing facility in Rwanda

Urine diversion dry toilet (UDDT) in Gafumba, Burera district, Nelson Ekane, 2011

Tippy tap (handwashing facility with water and soap) in Gafumba, Burera district, Nelson Ekane, 2011

Public Urine diversion latrine, Gafumba, Burera district, Nelson Ekane, 2011

Transformed to public pit latrine, Gafumba, Burera District, Nelson Ekane, 2015
Public Urine diversion latrine, Gafumba, Burera district, Nelson Eane, 2011

Transformed to public pit latrine, Gafumba, Burera District, Nelson Eane, 2015

Pictures of latrines and handwashing facility in Uganda

Urine diversion dry toilet (UDDT) structure in Mukono, Kampala, Nelson Ekane, 2013

Pit latrine invaded by termites, tippy tap (hand washing facility) installed nearby, Uganda, Nelson Ekane, 2013
4.3. Legislative framework for sanitation and hygiene in Rwanda and Uganda

In Rwanda, sanitation and hygiene are presently principally addressed in the 2005 Rwanda Organic Law. Article 3 of this Law stipulates that “Every person has the duty to protect, conserve and promote the environment. The State has a responsibility of protecting, conserving and promoting the environment”; Article 81 prohibits defecation or urination in public places; and Article 107 prohibits dumping of waste materials including sewage in public or private places. This is accompanied by fines for non-compliance (Rwanda Organic Law 2005; Medland 2014: 109).

Sanitation and hygiene in Uganda is mainly addressed in the Uganda Public Health Act (PHA) – first enacted in 1964 and amended in 2000, and the Local Governments Act of 1997. The PHA prohibits activities and actions that pose a threat to human health. Different aspects related to sanitation and hygiene are regulated under Part IX on sanitation and housing in the PHA. Pertaining specifically to latrines, it is stated that “... any dwelling, public building, trade premises, workshop or factory not provided with sufficient and sanitary latrines is considered a nuisance” (Section 57). Delegation of authority to local authorities is provided in Section 55 - “Every local authority shall take all lawful, necessary and
reasonably practicable measures for maintaining its area at all times in clean and sanitary conditions ...” (Section 55) (Uganda PHA 2000).

5. Methodology

5.1. Combination of exploratory, explanatory and descriptive approaches

I adopt a combination of exploratory, explanatory, and descriptive approaches in the various articles of this thesis (see Table 6). The exploratory approach has enabled me to be innovative in describing the problem, investigating different phenomena linked to the problem, and in explaining the findings. I used the descriptive approach to improve understanding on the ‘what’ and ‘how’ of things in my case studies. This is mainly used in Papers I, II, and IV. To identify reasons for specific phenomena, I used the explanatory approach, particularly in Paper III, to improve understanding of the driving psychological mechanisms underlying sanitation and hygiene related perceptions and judgment.

Table 6 Summary of research approaches adopted in the articles

<table>
<thead>
<tr>
<th>Title</th>
<th>Review of literature</th>
<th>Empirical study</th>
<th>Research approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Article I: Multi-level sanitation governance: understanding and overcoming challenges in the sanitation sector in Sub-Saharan Africa</td>
<td>X</td>
<td></td>
<td>Exploratory and descriptive</td>
</tr>
<tr>
<td>Article II: Linking policy and institutional frameworks to sanitation provision and hygiene promotion in Rwanda and Uganda</td>
<td>X</td>
<td>X</td>
<td>Exploratory, explanatory and comparative</td>
</tr>
<tr>
<td>Article III: Risk and benefit judgment of excreta as fertiliser in agriculture: An exploratory investigation in Rwanda and Uganda</td>
<td>X</td>
<td>X</td>
<td>Exploratory, explanatory and comparative</td>
</tr>
<tr>
<td>Article IV: Carrots, Sticks, and Sermons: Household perspectives on sanitation and hygiene behaviours in Rwanda and Uganda</td>
<td>X</td>
<td>X</td>
<td>Exploratory, descriptive and comparative</td>
</tr>
</tbody>
</table>

5.2. Comparative case study approach

I adopt a cross-national comparative case study approach which, according to Hupe and Saetren (2015), furthers theory development for implementation research. As a fundamental starting point for most theories in political and social sciences, comparative methods are important (Dalton 1991; Pennings et al. 2006: 24). However, implementation research has predominantly been on comparing policies within countries (Saetren 2014). I draw on Pennings et al. (2006) for the
comparative research design and from Yin (2014) for case study investigations. The comparative method deals with methodological issues in systematic analysis of a small number of cases (Collier 1993). ‘Cases’ can be viewed in two ways: as an empirical entity defining the boundaries of investigation and consisting of units of observation; and as a theoretical construct consisting of a combination of the level of measurement employed (e.g. individuals, communities or governments) and the units of variation or variables employed (e.g. attitudes, programmes, and policies) (Pennings et al. 2006: 8). Pennings et al. (2006: 9), however, conclude that cases should always be defined as empirical entities that relate to research questions i.e. the cases or ‘carriers of information’ are identically defined by time and place, and logically connected to the research questions. This approach is useful in understanding and explaining how context influences performance of interventions and why interventions produce certain outcomes in different contexts (Yin 2014; Goodrick 2014; Hupe and Saetren 2015). From a comparative point of view, this approach also permits me to explain how and why the policy implementation process in Rwanda, where ‘good progress’ in the MDG sanitation target was recorded, differs from that in Uganda where ‘limited’ progress was recorded (WHO/UNICEF 2015).

To operationalise the core subject of this research in terms of policy and institutional framework, the following units of variation were selected: core sector specific factors (in line with the priority areas of the eThekwini commitment\(^9\)) and some key institutional factors. The units of measurement consist of selected indicators (see Table 7).

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\(^9\) This declaration was an expression of the commitment to prioritise and support efforts in terms of policies, leadership, coordination, funding, monitoring and evaluation (M&E), and capacity development to improve water and sanitation in the entire continent. Countries were urged to make public budgetary allocation for sanitation of at least 0.5% of Gross Domestic Product (GDP).
Qualitative and quantitative methods were employed to collect and triangulate data. Following Creswell (2009: 203), mixed methods provide an expanded understanding of complex research problems such as those related to sanitation practices and hygiene behaviours in Rwanda and Uganda. This approach enabled me to obtain a rich account of the prevailing rules, the actors present, and the strategies and actions that take place on the ground in different locations in Rwanda and Uganda. Empirical research was conducted at the national level and at selected case study sites within each country. These sites were selected as illustrative cases for comparison - representing rural and peri-urban/urban settings (see Tables 8, 9, and 10). The selection of some study sites with CHC and CLTS experiences following recommendations from implementers suggests that most of them were reasonably successful cases.

5.3. Selected study sites for data collection

Data was collected from different districts in Rwanda and Uganda. This was facilitated by local research partners in both countries – College of Medicine and Health Sciences, University of Rwanda and the Network for Water and Sanitation (NETWAS) in Uganda. Districts where local partners had ongoing research activities as well as where there is extensive implementation of prominent sanitation and hygiene programmes, notably CHCs in Rwanda and CLTS in Uganda were targeted. Some of the districts were recommended by experts at the national
level during my interviews with them. This is particularly the case of Kicukiro district (CHC) which was recommended by experts from the Ministry of Health in Rwanda. Rusizi district (CHC) was recommended by the local research partner in Rwanda. Tororo district (CLTS) was recommended by UNICEF Uganda. Kyenjojo district was recommended by the local research partner in Uganda. Table 8 shows the sites where data was collected.

**Table 8** Selected study sites where data was collected for various articles

<table>
<thead>
<tr>
<th></th>
<th>Rwanda</th>
<th>Uganda</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Urban</td>
</tr>
<tr>
<td><strong>Paper II</strong></td>
<td>Rusizi</td>
<td>Kigali city</td>
</tr>
<tr>
<td><strong>Paper III</strong></td>
<td>Burera</td>
<td>Kibuye</td>
</tr>
<tr>
<td><strong>Paper IV</strong></td>
<td>Rusizi</td>
<td>Kicukiro, Gasabo</td>
</tr>
</tbody>
</table>
### Table 9 Selected study sites for investigating research question 1 and 2 (RQ 1 and 2)

<table>
<thead>
<tr>
<th>Rwanda</th>
<th>Uganda</th>
</tr>
</thead>
<tbody>
<tr>
<td>District</td>
<td></td>
</tr>
<tr>
<td>Rwandan</td>
<td></td>
</tr>
<tr>
<td>UCuzi</td>
<td></td>
</tr>
<tr>
<td>Kicukiro</td>
<td></td>
</tr>
<tr>
<td>Gasabo</td>
<td></td>
</tr>
<tr>
<td>Tororo</td>
<td></td>
</tr>
<tr>
<td>Kyenjojo</td>
<td></td>
</tr>
<tr>
<td>Setting</td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>Rural</td>
</tr>
<tr>
<td>Peri-urban</td>
<td></td>
</tr>
<tr>
<td>Approach</td>
<td></td>
</tr>
<tr>
<td>CHC</td>
<td>No CHC</td>
</tr>
<tr>
<td>CHC</td>
<td>No CHC</td>
</tr>
<tr>
<td>CLTS</td>
<td>No CLTS</td>
</tr>
<tr>
<td>Best performing CLTS</td>
<td>Poor performing CLTS</td>
</tr>
<tr>
<td>Selected site</td>
<td></td>
</tr>
<tr>
<td>Nyambeho</td>
<td>Kareba</td>
</tr>
<tr>
<td>Kanyetabi</td>
<td>Kakinyaga</td>
</tr>
<tr>
<td>Kasipo A</td>
<td>Okwira</td>
</tr>
<tr>
<td>Kasoga</td>
<td>Kyongo</td>
</tr>
<tr>
<td>Number of households (hhs)</td>
<td></td>
</tr>
<tr>
<td>110</td>
<td>126</td>
</tr>
<tr>
<td>318</td>
<td>285</td>
</tr>
<tr>
<td>117</td>
<td>123</td>
</tr>
<tr>
<td>117</td>
<td>98</td>
</tr>
<tr>
<td>Surveyed hhs</td>
<td></td>
</tr>
<tr>
<td>105</td>
<td>120</td>
</tr>
<tr>
<td>302</td>
<td>271</td>
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<tr>
<td>101</td>
<td>83</td>
</tr>
<tr>
<td>93</td>
<td>98</td>
</tr>
<tr>
<td>Year introduced</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>-</td>
</tr>
<tr>
<td>2013</td>
<td>-</td>
</tr>
<tr>
<td>2008</td>
<td>-</td>
</tr>
<tr>
<td>2014</td>
<td>2014</td>
</tr>
<tr>
<td>Implementers</td>
<td></td>
</tr>
<tr>
<td>Africa Ahead (Bill and Melinda Gates Foundation funding); local government</td>
<td>Chemonics (USAID funding); Rwanda Health Family Project; local government</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>CHC – CHC intervention</td>
<td></td>
</tr>
<tr>
<td>No CHC – No CHC intervention</td>
<td></td>
</tr>
<tr>
<td>CLT – CLTS intervention</td>
<td></td>
</tr>
<tr>
<td>No CLTS – No CLTS intervention</td>
<td></td>
</tr>
<tr>
<td>Best performing CLTS – CLTS best practice</td>
<td></td>
</tr>
<tr>
<td>Poor performing CLTS – CLTS poor practice</td>
<td></td>
</tr>
</tbody>
</table>

### Table 10 Selected study sites for investigating research question 3 (RQ 3)

<table>
<thead>
<tr>
<th>Rwanda</th>
<th>Uganda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selected sites</td>
<td></td>
</tr>
<tr>
<td>Gafumba, Cyahi, and Karangara (Bujera district)</td>
<td>Kibuye town</td>
</tr>
<tr>
<td>Kitumba (Kabale district)</td>
<td>Bwaise, Kampala city</td>
</tr>
<tr>
<td>Mbarara town</td>
<td></td>
</tr>
<tr>
<td>Background of Participants</td>
<td></td>
</tr>
<tr>
<td>farmers</td>
<td>students</td>
</tr>
<tr>
<td>farmers</td>
<td>traders</td>
</tr>
<tr>
<td>Number of participants</td>
<td></td>
</tr>
<tr>
<td>123</td>
<td>98</td>
</tr>
<tr>
<td>81</td>
<td>59</td>
</tr>
<tr>
<td>47</td>
<td></td>
</tr>
<tr>
<td>221</td>
<td>187</td>
</tr>
</tbody>
</table>

CHC – CHC intervention
No CHC – No CHC intervention
CLT – CLTS intervention
No CLTS – No CLTS intervention
Best performing CLTS – CLTS best practice
Poor performing CLTS – CLTS poor practice
5.4. Research design and procedure

Different research methods were employed in the empirical investigations at different levels of society – macro, meso, and micro.

5.4.1. Macro-level policy assessment

This involved an assessment of sanitation and hygiene policy documents, political statements, implementation strategies, policy outcome and impact in Rwanda and Uganda. Sanitation policies and related institutional reforms were examined, with differences and similarities highlighted and where possible explained.

5.4.2. Meso-level mapping of actors and actions

Semi-structured interviews were held at the national level with representatives of line ministries, development agencies, and civil society organisations, service providers and community workers. At the local or district level, I interviewed local government officials, health inspectors and service providers as well as community leaders in the selected case study areas.

Interviews were performed in Rwanda with SNV, Water and Sanitation Corporation (WASAC), Africa AHEAD, UNICEF, Ministry of Health (MINISANTE), WaterAid, Forum for Private Operators of Water and Sanitation Systems (FEPEAR), and with Private Operators of Water and Sanitation Systems districts. In Uganda, interviews were conducted with the Uganda Sanitation Fund (USF) programme hosted by the Ministry of Health (MoH), UNICEF, World Vision, Plan International, WSP World Bank, and with district health officers.

The following were used as guiding questions during interviews:
- Priority – to what extent are national and local governments committed to working with sanitation and hygiene?  
- Period – when were policies, programmes and strategies introduced? Players - which organisations/authorities are involved in making and rolling out or implementing policy and programmes?  
- Process - what implementation, funding, coordination, communication, monitoring and evaluation mechanisms are in place? Progress - What are the outcomes? Are policy objectives met or not?  

Analysis of information from interviews reveals how political will is expressed at the top national policy levels, how this is interpreted at different levels, and how sanitation sector guidelines are viewed at the level of
implementation. The meso-level analysis reveals the actual national and local-level workings of the sanitation sector in Rwanda and Uganda i.e. coordination, enforcement, monitoring and evaluation, performance measurement, etc. This analysis reveals coherence and contradiction between policy and practice at different levels.

5.4.3. Micro-level investigations
This involved household surveys of different groups of individuals of different backgrounds, semi-structured interviews with key informants, and focus group discussions with village health teams (VHTs) in Uganda and Community Health Workers (CHWs) in Rwanda.

5.4.4. Validation of findings and comparative assessment
Results of the macro-level policy assessments were presented, discussed and validated during a regional workshop in 2014 in Kampala, Uganda. Participants included researchers and practitioners from the case study countries and researchers from Sweden.

Table 11 Summary of outputs from investigations at different governance levels

<table>
<thead>
<tr>
<th>MLG</th>
<th>Paper I</th>
<th>Paper II</th>
<th>Paper III</th>
<th>Paper IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macro</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meso</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Micro</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>

Household survey data was collected from selected case study sites in Rwanda and Uganda and is not representative of the entire countries. As a result, generalisations cannot be made for Rwanda and Uganda with the survey findings. However, I have been able to use qualitative methods to study national trends in policy reforms which are generalisable for Rwanda and Uganda.
6. Discussion of results

6.1. Policy implementation related insights

6.1.1. Political will and commitment to initiate and drive change: the case of Rwanda and Uganda

In line with the international and regional development agenda, notably the MDGs and now SDGs at the global level as well as the eThekwini commitment at the regional level, just to mention a few, Rwanda and Uganda have raised the profile of sanitation and hygiene and now have national policies for drinking water and sanitation. As a result, sanitation and hygiene have become salient issues in both countries. This itself is an indication of the increasing recognition in these countries that policies constitute an important part of the enabling environment for planning and support for needed action on the ground to provide sanitation services and promote hygiene behaviour change. This is also an indication that there is increasing political will and commitment among governments to tackle the problem nationally. However, simply having a policy as highlighted in article II is by no means sufficient to ‘make sanitation happen’ if policy objectives cannot be effectively translated to outcomes. In other words, policy can be viewed as words – which without appropriate and effective action and resources remain mere words.

Numerous policy and institutional reforms have been undertaken over the years in Rwanda and Uganda to clarify sanitation and hygiene policy objectives and to reassign and redefine roles and responsibilities of the increasing number actors in the sector. This is characterised by increasing decentralisation of roles and responsibilities which is not necessarily accompanied by devolution of authority and resources. Attempts are made through for example the national sanitation working groups (NSWGs) and the sector-wide approach (SWAps) to address coordination and communication problems that emanate from increasing involvement of different actors in the sector (summarised in Table 12). These constitute the institutional environment at Level 2 and governance structures at Level 3 (Williamson 2000) (see sub-section 2.3) that should cater for the shortcomings of the new forms of governance. This pertains to allocation of adequate resources for sanitation and hygiene, creating separate funding mechanisms and appropriate strategies for sanitation and hygiene, and creating a ‘home’ and separate institutional framework for sanitation and hygiene.
## Table 12 Summary of similarities and differences between Rwanda and Uganda

<table>
<thead>
<tr>
<th>Units of variation</th>
<th>Factors</th>
<th>Rwanda</th>
<th>Uganda</th>
</tr>
</thead>
</table>
| Political leadership/will | Institutional | Sanitation and hygiene in development agenda  
Discrepancy between commitment and resource allocation  
Authority exerted through the Presidential Initiative and performance contracts | Sanitation and hygiene in development agenda  
Discrepancy between commitment and resource allocation  
Authority exerted through the Office of the Prime Minister and Parliamentary WASH forum |
| Policy/institutional arrangement | Institutional | Top-down but aiming at involving local communities | Public-private partnerships, contracting out  
Government restricted to policy formulation and planning |
| Decentralisation | | More recent sector reforms  
Sanitation in EDPRS2  
Streamlined organisation  
Shift aims at fostering inclusion and empowerment through CBEHPP  
Citizens considered as partners within CBEHPP | Sector reforms since 1997 during the Kampala Declaration on Sanitation  
Sanitation in PEAP  
Complex organisation  
Shift is predominantly towards markets  
Citizens considered as customers |
| Norms/community by-laws | | Addressed predominantly through CHCs (rural and urban tool) under Ministry of Health | Addressed predominantly through CLTS (rural tool) and sanitation marketing (rural and urban tool) under Ministry of Water and Environment and Ministry of Health |
| Policy, planning/strategy | Sectoral | Combined water and sanitation policy  
Lacks resources for implementation  
Access defined in terms of ‘improved’ - flush or pit latrine with a solid slab  
Separate sanitation policy being prepared | Combined water and sanitation policy Addressed within Environmental Health Policy  
Lacks resources for implementation  
Access defined in terms of ‘basic’ - on-site and sewerage in urban settings and pit latrines in rural settings. |
| Coordination | | SWAp and NSWG  
Joint monitoring of progress and policy development | SWAp and NSWG  
Clarifying roles and coordinating budgets |
| Budgeting and financing | | 0.5% GDP allocation not yet implemented, Funding still not sufficient to drive change at scale  
Investment priority is on rural sanitation  
No urban sewerage system  
Sector is donor dependent | 0.5% GDP allocation not yet implemented, Funding still not sufficient to drive change at scale  
Investment priority is on urban sanitation and sewerage arrangements  
Sector is donor dependent |
| M&E | | Joint sector and technical review  
JADF and process of | Joint sector and technical review  
Accountability gaps |
As Table 12 shows, the institutional framework and trends in policy reforms in Rwanda and Uganda are fairly similar. However, Rwanda’s relative progress can be partly attributed to the following factors which constitute the main differences between the two countries: top-down authority aimed at involving local communities; institutionalised CBEHPP under one ministry enables the creation of CHCs which promote inclusive and empowered communities; leadership by example wherein the president gives a high profile to sanitation; through performance contracts, a combination of top-down authority is used to maintain accountability and improve performance; and investment in rural areas where the majority of the population resides. Even though some observers of Rwanda (Straus and Waldorf 2011; Purdekova 2011; Sommers 2012) raise concerns regarding the top-down governance model in Rwanda and the implications for democratic values, the approach seemingly ‘makes things happen’ as indicated by various development indicators, including sanitation coverage.

### 6.2. Behavioural insights
Sanitation service delivery has a strong hygiene behaviour change component which is a very important complement. However, unlike many other social or basic infrastructure services such as water and electricity, sanitation and hygiene proves to be more complex for a number of reasons, one of which has to do with changing personal or private sanitation practices and hygiene behaviours and related socio-cultural and traditional norms (Routray et al. 2015). Individual sanitation practices and hygiene behaviours including defecation and handwashing habits are generally

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10 The Uganda Water and Sanitation Dialogues, 2008, 6.
personal or private issues. Moreover, there are various socio-cultural and traditional norms and perceptions of dirt and disease suggesting different kinds of behaviours and practices. This is perhaps most easily discernible in contexts where people hold steadfastly to socio-cultural and traditional beliefs, taboos, moral codes, etc. The 2015 WDR (World Bank 2015) which focuses on the mind, society and behaviour points out that the decisions people make about their health and their bodies emerge out of a tangle of information, the availability and price of health goods and services, social norms and pressures, mental models of the causes of disease, and willingness to try certain interventions. These constitute Level 1 institutions which are embedded in society and change slowly over very long periods of time (Williamson 2000).

Following from the above, sanitation and hygiene problems will not be solved by merely building toilet and handwashing facilities (Routray et al. 2015). The problem is more complex than this. To ‘make sanitation happen’, we need a good understanding of people’s behaviours and practices, which depend to a large extent on context and culture (Shafir 2013; World Bank 2015). We know that technological advances have played and will continue to play a key role in providing different options for transforming sanitation and hygiene conditions in different parts of the world (‘benign’ problems). For instance, the latrine is crucial in this process as it helps to physically separate people from their excreta. This has contributed immensely to improvements in human and environmental health and general well-being over the years (Mitchell 2016). However, despite sanitation technology development, diffusion or adoption of innovations remains almost non-existent in most parts of SSA (‘malignant problem’), Rwanda and Uganda being no exception. This is particularly the case with some prescribed behaviour change approaches and sustainable sanitation solutions (see article III).

Pertaining to access and use of toilet facilities, part of the problem is that overemphasis on technology driven, subsidy-based supply-driven approaches has so far produced sub-optimal results (WSP 2010; ECA 2012; GLAAS 2014; Routray et al. 2015; Burns and Worsley 2015). Undoubtedly, the challenge remains in providing access to context-specific technology solutions and most importantly in getting people to use them. I contend that the latter is largely a behavioural matter and have addressed this issue both from a policy instrument perspective
(article IV) and from a risk governance perspective (Fischhoff et al. 2011) (article III). This pertains to sharing information, changing beliefs, and changing behaviours.

Table 13 Summary of behavioural insights

<table>
<thead>
<tr>
<th>Provision of toilet facilities (technical solutions or 'hardware')</th>
<th>Promotion of health and hygiene behaviour change ('software')</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Just providing toilet facilities is not enough</td>
<td>• Personal or private issues</td>
</tr>
<tr>
<td>• The challenge is to get people to use them</td>
<td>• Tied to socio-cultural and religious norms, beliefs and taboos that are embedded in society</td>
</tr>
<tr>
<td>• Need for context-specific solutions</td>
<td></td>
</tr>
</tbody>
</table>

Source: this research

6.2.1. Changing sanitation practices and hygiene behaviours
Universal compliance to recommended practices and behaviours is not achievable in the short-term through educational messages alone which are the most legitimate instruments. Other instruments can trigger short-term desired changes but may not always be legitimate. Education is suitable for targets that ‘don’t want to comply’ due to cognitive, belief, and peer-effect barriers but education may not be enough to overcome self-interest in order to attain the much-needed universal compliance and eradication of OD by 2010. Other instruments are needed to reach individuals that ‘don’t need to comply’ due to monitoring and enforcement problems and those that ‘can’t comply’ due to resource and autonomy problems. This mix is reflected in the findings of this research (see article IV).

Even though the use of coercive instruments (‘sticks’) notably shaming, especially in poor contexts, is debated, my findings reveal that different forms of ‘sticks’ including shaming, naming and fines are generally perceived as effective in managing practices or habits such as OD and handwashing, but are likely to compromise social relations and values in the society. This insight is consistent with previous work on poverty-related shaming (Spicker 1984; Walker et al. 2013).

In terms of performance and effectiveness of CHC and CLTS, higher levels of compliance as shown by key indicators – reported latrine ownership,
observed latrine, water and soap at the handwashing facility, and frequency of handwashing is an indication of the effectiveness of these approaches.

The role of government is fundamental in establishing the enabling environment for effective delivery of basic sanitation and hygiene services. However, the provision of sanitation facilities and promotion of hygiene behaviour change are by no means the exclusive roles and responsibilities of the government. Actually, households are reported to provide the largest source of investment in sanitation and handwashing facilities (GLAAS 2017: 45).

6.2.2. Risk management and communication
Pertaining to diffusion of new technologies and systems, the claim that mere utility of innovation in sanitation services leads to its adoption is increasingly being challenged (Van Vliet et al. 2011; O’Keefe et al. 2015). My contribution to this debate improves understanding of psychological mechanisms underlying judgment of excreta as fertiliser in agriculture including other excreta-related activities in Rwanda and Uganda. No matter how plausible the consideration of human waste as a resource might be, knowledge gaps remain in terms of acceptance, safety, risk management and communication. There are challenges in introducing and mainstreaming ‘toilet to farm’ and ‘toilet to tap’ systems as well as in transforming ongoing unsafe excreta and wastewater related practices. Negative emotions play a major role in influencing judgment and decision-making regarding the productive use of excreta. This insight is relevant for risk governance as it indicates that individuals do not rely only on risk management information they receive concerning excreta and related risks but also depend, to an extent, on their feelings about these substances when making judgments and decisions regarding the purposes to which excreta used as fertilizer can be put and the level of exposure they can tolerate and manage.

7. Conclusion and recommendations for future research
This research deals with very important issues for human well-being, dignity and development - sanitation and hygiene - which remain a problem, particularly in the developing context. Despite increasing recognition of the problem at international and national levels, progress remains slow in providing sanitation facilities and
promoting hygiene behaviour change. In this thesis, I have approached the problem as a 'wicked' one which is shaped by context and culture particularly in the SSA region. Drawing on different policy, implementation and behavioural theories as well as empirical investigations in different settings in Rwanda and Uganda, this thesis is a novel attempt to build on literature and, most importantly, to contribute useful insights to the ongoing debate in the sanitation sector about what works on the ground.

Drawing on mixed methods and a comparative approach, I have been able to pinpoint similarities and differences in sanitation policy approaches in Rwanda and Uganda and describe and explain them. The combination of qualitative and quantitative research methods allowed me to collect and analyse data at the macro, meso and micro levels of governance. This has enabled me to formulate useful insights in line with my set research objectives and research questions.

This thesis shows how policy and local actions for sanitation and hygiene may or may not influence ideas and behaviours of communities and individual households. Within the new modes of sanitation governance, global visions and expectations and national ambitions do not match local means and actions for sanitation. Whereas the policy climate and prioritisation of sanitation has been favourable in Rwanda and Uganda, resource allocation to the sector and inadequate capacity of the responsible agents remain major constraints to sector performance. However, the Rwandan top-down approach that allows for inclusion of local communities partly explains why sanitation policy implementation works somewhat differently in Rwanda than in Uganda.

As this thesis shows, target populations are confronted with multiple barriers which make them unable to behave in the ways that policy prescribes. Target populations face capacity constraints (‘can’t comply’) due to factors such as general poverty, distant sources of water and availability of building materials. There are also challenges related to socio-cultural norms and beliefs which usually suggest different behaviours (‘don’t want to comply’). Moreover, basic decisions and actions at the individual level are discretionary. In this case, ‘backward mapping’ constitutes a plausible approach for including the perspectives of target populations in the process of designing and implementing reforms. There are also
individuals who ‘don’t need to comply’ due to monitoring, enforcement, and incentive problems. To address the above barriers, a combination of instruments is needed to provide information about recommended behaviours, initiate behaviours, and restrict, deter, and punish undesirable behaviours.

Sanitation is a public problem that requires collective action for the common good. This suggests universal compliance to eliminate the negative costs on society. However, to attain universal compliance in the short term, self-interest must be limited. Empirical findings of this research indicate that approaches such as CHC and CLTS have positive effects on behaviour change but differ in terms of the extent of change and community outreach. Long-term change depends on efficient and sustained efforts. This pertains to reaching a critical mass for universal compliance. Universal compliance is most likely achievable and sustained through approaches like CHCs partly due to their wider community outreach and the creation of a ‘culture of health’. In spite of this, universal compliance is not achievable in the short-term through educational appeals alone, which are the most legitimate instruments. Other instruments such as shaming and naming, which are inherent in CLTS, and even fines can trigger short-term desired changes but may not be legitimate.

Theoretically, the insights from this research build on different strands of literature. This has been useful in exploring and explaining different phenomena in sanitation provision and hygiene promotion in Rwanda and Uganda. By so doing, I have extended the various theoretical concepts into a different culture and domain. I have been creative in using the literature to identify specific variables in investigating different phenomena. This is particularly the case with the multi-level governance concept which is used as a conceptual framework as it offers a pragmatic approach to thinking and allows for the use of different theories to explain different governance phenomena. Within this framework, I employ different theories, notably policy implementation and behavioural theories.

Drawing on policy and implementation theories, I explore pressing questions about how developing countries such as Rwanda and Uganda are organising the sanitation sector, coordinating various efforts and making things happen on the ground. From a comparative perspective, I identify and explain the differences in the implementation of sanitation policy in the two countries and how
the differences in strategies can be linked to different outcomes on the ground. The selection of variables is done based on a range of factors theorised by scholars in literature as affecting outcome. This is a fairly novel attempt at applying the policy implementation literature in the context of Rwanda and Uganda, when so much of the work on implementation and policy process has been done by American and European scholars and empirical research has focused mainly on the United States or other developed country contexts. I have equally built on the policy instrumentation literature by empirically investigating the effectiveness and appropriateness of the use of incentives, disincentives, and educational messages - 'carrots', 'sticks' and 'sermons' in Rwanda and Uganda. This work contributes to the ongoing debate on the performance of community-based approaches to sanitation predominantly promoted and funded in Rwanda and Uganda.

From a behavioural point of view, I have been able to extend the risk and benefit paradigm into a different culture and domain, where I find it highly relevant in improving understanding of human behaviour, judgment, and decision-making regarding human excreta and their use for productive purposes.

Practically, this research provides much needed insights into how to analyse and close the gap between policy intentions and outcomes. This includes an improved understanding of policy priorities, implementation failures, approaches and instruments that work or not in making sanitation happen, individual or household perspectives and perceptions of excreta and related activities. Further, the insights also contribute to the debate on the choice, appropriateness and effectiveness of different policy instruments in changing sanitation practices and hygiene behaviours. Generally, this research addresses quite a number of development challenges related to sanitation and hygiene. These challenges are ubiquitous in the developing context in general. As a result, this research gives a good account of the problem, how it is being addressed or not, and the outcome or performance on the ground in the case of Rwanda and Uganda. The insights from the macro-level assessment and meso-level-mapping of actors give an indication of the governance trends (governance structures and institutional arrangements) in most countries in the SSA region.

Empirically, the comparative research design and investigations in different settings and with individuals from different backgrounds are indications
of the scientific rigour of my work. The inclusion of different interventions and contexts in the study design – CHC and CLTS interventions versus no CHC and CLTS interventions), best practice CLTS intervention versus poor practice CLTS intervention (best performing CLTS versus poor performing CLTS), and rural and peri-urban settings in different countries was useful in quantitatively showing what makes sanitation happen in the various countries. Nonetheless, this study is limited in a number of ways. Since the micro-level investigations in Rwanda and Uganda were performed in selected study sites with different sampling techniques, some of the insights cannot be generalised. This is particularly the case with the insights from the convenience samples (article III). Convenience sampling is limited in terms of generalisation of findings but is appropriate for studying certain phenomena on particular samples. But the fact that the inverse relationship between risk and benefit judgment of excreta and related practices was replicated with three groups of individuals from different backgrounds in Rwanda and Uganda is an interesting finding and a contribution to the literature. On the other hand, the sampling for the study on household perspectives in changing sanitation and hygiene behaviours was representative of the study sites and is generalisable for these sites (article IV). The findings in this particular article give an indication of the performance of CLTS and CHCs in addressing the sanitation challenge in different contexts. This is a useful contribution to the sanitation sector in the developing context as it is one of the few studies looking at both CHCs and CLTS. Further, the fact that most of the selected study sites for empirical investigations for article IV were recommended by local practitioners and partners suggests that some sites were reasonably successful cases. A survey of best performing CHC intervention versus poor performing CHC intervention in Rwanda was not done due to time constraints. This is a planned future research activity. For the CHC and CLTS study (article IV), focus group discussions would have given in-depth accounts of perceptions and expectations but still the findings would not have been generalisable. Focus group discussions were, however, very useful in obtaining information from VHTs in Uganda and CHWs in Rwanda in connection with article II.

To foster this line of research, further work is needed to specifically examine political processes of policy formulation and other aspects such as
corruption in the sector. How the ‘backward mapping’ strategy actually works in practice in effectively designing and implementing reforms and small-scale policy modifications in the developing context is an important aspect for further research. Another interesting future research building on this thesis is to explore the extent to which policy and implementation processes for sanitation differ from those of other sectors e.g. housing, electrification, mobile phones, and how these differences can be explained.

8. References


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