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## Decision-making on shared sanitation in the informal settlements of Kisumu, Kenya

Sheillah Simiyu<sup>a#</sup>, Mark Swilling<sup>a</sup> and Sandy Cairncross<sup>b</sup>

<sup>a</sup>School of Public Leadership, Stellenbosch University, Stellenbosch, South Africa; <sup>b</sup>Department of Disease Control, London School of Hygiene and Tropical Medicine, London, UK

### ABSTRACT

Unlike most quantitative studies that investigate decision-making on investing in sanitation, this study adopted a qualitative approach to investigate decision-making on shared sanitation in the informal settlements of Kisumu city, in Kenya. Using a grounded theory approach, landlords and tenants were interviewed to identify sanitation decisions, individuals involved in decision-making and factors influencing decision-making. The results indicate that the main sanitation decisions are on investment, emptying, repair and cleaning. Landlords make investment, emptying and repair decisions, while tenants make cleaning decisions. Absentee landlords are less involved in most decision-making compared to live-in landlords, who rarely consult tenants in decision-making. Tenants make decisions after consultations with a third party and often collectively with other tenants. Sanitation interventions in informal settlements should thus, target landlords and tenants, with investment efforts being directed at landlords and maintenance efforts at tenants.

### ARTICLE HISTORY

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### KEYWORDS

Landlord; tenant; sanitation investment; decision-making; shared sanitation

## Introduction

One of the many challenges facing residents in informal settlements is the lack of adequate sanitation facilities. Development partners and governments have attempted to address this challenge, with interventions aiming to increase the demand for sanitation. These interventions are informed by quantitative economic and behavioural studies that investigate the willingness to pay for new or improved technologies (Milanesi 2010; Santos et al. 2011). The underlying assumption of these economic studies is that reducing the cost of latrines to levels below the reported ‘willingness-to-pay’ thresholds will lead to an increased demand, increased investment and increased use of sanitation facilities.

An increased demand for sanitation facilities, however, does not always translate into increased use of sanitation facilities. In informal settlements, sanitation facilities are often shared by a number of households, with studies pointing to such facilities being poorly maintained and dirty, thus, posing a health risk to their users (Tumwebaze 2013; Tumwebaze et al. 2013). Such conditions may reduce the usage of these sanitation facilities.

In addition, a reduced cost of sanitation technologies may not always lead to an increase in the number of people buying these sanitation technologies. The reason is that each informal settlement has

**CONTACT** Sheillah Simiyu  Sheillahshie@gmail.com

<sup>#</sup>Currently at Great Lakes University of Kisumu, P.O. Box 2224-40100 Kisumu, Kenya.

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unique characteristics, and unobserved factors, such as relationships, perceptions, attitudes, that also explain the choices and decisions that individuals make (Santos et al. 2011; Mimmi 2014). Furthermore, tenure insecurity in informal settlements often times implies that tenants may not always prioritise investing in basic services, such as sanitation (Marx et al. 2013). Landlords and tenants have different preferences, including those related to sanitation, and so they may not always make similar decisions on buying or investing in sanitation facilities, especially when the sanitation facilities are shared (Isunju et al. 2011).

There is a dearth of research on decision-making on shared sanitation. Jenkins and Scott (2007) proposed a model describing the behavioural aspects of household sanitation decision-making. They theorised that decision-making on sanitation begins with showing preference for sanitation, develops into an intention to adopt or install sanitation facilities, and finalises in the actualisation of this preference and intent through the adoption of sanitation facilities.

This model by Jenkins and Scott (2007) provides a detailed description of decision-making for sanitation, especially for the purpose of increasing demand and adopting social marketing as an approach for the uptake of sanitation. However, it has weaknesses when applied to decision-making on shared sanitation in informal settlements. One of the weaknesses is that the model did not investigate inter- and intra-household dynamics which may influence decision-making because of the sharing of sanitation facilities in most informal settlements. In addition, beyond the decision to purchase a latrine, additional decisions, such as those relating to the maintenance of sanitation facilities may be made. The decision-making process may thus, involve other individuals outside the household.

This lacuna in household decision-making on shared sanitation is an important area for research, as it identifies decision-makers, the roles they play, decisions they make and the challenges faced when making decisions. The aim of this study, therefore, was to answer some of these questions on decision-making on shared sanitation in informal settlements. This study was part of a research project of which the initial phases were quantitative studies conducted within Kisumu's informal settlements. These initial phases sought to estimate the cost of sanitation through rental prices, and to assess the quality of shared sanitation facilities in the settlements (Simiyu, Swilling, Cairncross, et al. 2017; Simiyu, Swilling, Rheingans, et al. 2017). The third phase of the project reported on in this article was an in-depth investigation of how and why sanitation decisions (such as investment and maintenance) were made.

## Methods

### Study area

Kisumu is a city in Kisumu County, in Kenya's western region. It is one of the fastest growing cities in Kenya, with a population of approximately 420,000 (Republic of Kenya 2013). More than half of the population is estimated to be living below the poverty line, making Kisumu one of the poorest cities in Kenya (UN-Habitat 2005). Approximately, 60 % of the city's population lives in informal settlements (Syrjänen 2008). These informal settlements include Nyalenda A, Nyalenda B, Bandani, Obunga, Manyatta A and Manyatta B.

These settlements surround the planned areas of Kisumu city. Their growth began after the former rural areas were incorporated into the urban boundary, where development has largely occurred without formal planning (Huchzermeyer 2009). Land in these settlements was acquired through inheritance and registered as freehold land (Huchzermeyer 2009). Population growth in the city due to immigration led to the growth and development of a rental market in the settlements with landowners subdividing and selling their pieces of land and buyers putting up better quality housing structures (UN-Habitat 2005; Huchzermeyer 2009).

Housing structures within the settlements are either constructed traditionally with mud walls and iron sheet roofing or in modern styles incorporating brick or concrete walls (UN-Habitat 2005). Residents, most of whom are tenants, live-in compounds (a group of single-unit houses under one

landlord) that have a number of occupiers (Karanja 2010). A landlord would be responsible for, among others, ensuring that basic services, such as water, sanitation, electricity are provided to the compound residents. Within these compounds, a landlord may be living with his/her tenants in the same compound (live-in landlord), or tenants may be living alone and their landlord living elsewhere (absentee landlords). Some of the compounds with absentee landlords have a caretaker, who may be one of the compound tenants appointed by the landlord to be in charge of overseeing the day-to-day management of the compound. The compounds form the lowest level of interaction among residents. Any issues between the residents would normally be handled at the compound level. The landlord would often be involved, as he is the 'leader' in the compound. In the landlord's absence, the caretaker would be in charge. Beyond the compound, the settlements also have local leaders or village elders. These leaders are opinion leaders who are decision-makers and gate keepers in the settlements. Residents are also organised in what they call a Residents Association (RA), which is a management body of residents in the settlements. This association has a leadership structure comprising members from the settlements. The association handles and manages development matters related to the settlements. In terms of political administration, the settlements are headed by a chief and an assistant chief. The chief is in charge of all development and administrative issues within his area of jurisdiction.

In terms of stakeholder involvement, Kenya's Environmental Sanitation and Hygiene policy (KESH) tasks municipalities at the county level to coordinate and regulate sanitation service delivery in their respective cities. Community health extension workers (CHEWs), village administrators, location chiefs and sub-chiefs, Non-governmental organisations (NGOs) and Community-Based Organisations (CBOs) are required to involve households in sanitation matters at the community level. At the household level, landowners are mandated to provide sanitation facilities (Republic of Kenya 2016). In line with these requirements, a number of stakeholders are involved in sanitation in Kisumu city. These stakeholders include public health officers, CHEWs, chiefs, local leaders, CBOs and NGOs. The local authorities, such as chiefs and community health workers have been working with CBOs and NGOs to raise awareness on the importance of sanitation and to promote access to sanitation through community projects (Simiyu 2015).

In terms of sanitation provision, it is estimated that the municipal sewer system serves about 10 % of the urban population in Kisumu city, with the informal settlements being largely unserved (Letema et al. 2014). Approximately, half of the population in these settlements lacks sanitation facilities (Karanja 2010). Studies in Kisumu's informal settlements highlight that tenants rely on landlords to provide sanitation facilities (Simiyu 2015). These sanitation facilities are often shared among households in a compound and studies indicate that traditional pit latrines are predominant in the settlements, although other technologies, such as septic tanks and Ecosan toilets, are also used (Letema et al. 2014). Most of these sanitation facilities are dirty, an indication of a lack of or inadequate cleaning (Simiyu 2015; Simiyu, Swilling, Cairncross, et al. 2017). Due to poor workmanship and loose soils, these latrines often collapse in the rainy seasons (UN-Habitat 2005). Pit latrine-emptying services using tankers are available in the city. These services are provided by the municipality and private individuals. Residents of informal settlements often prefer manual pit latrine-emptying services because the service providers are cheaper, easily available and can access areas that would otherwise be inaccessible to the latrine-emptying tankers (Simiyu 2015).

### **Data collection**

Principles of grounded theory were utilised in conducting this study. In the grounded theory approach, sample selection, data collection and analysis occur in an iterative manner until the point when new constructs cease emerging (a point of saturation) (Green & Thorogood 2004, p. 180–181). This saturation point is reached when the researcher realises that new data will not provide any new information (Creswell 2012, p. 433).

On average, Kisumu's informal settlements are each divided into four clusters which are commonly called units. One unit was selected from each of Nyalenda A, Nyalenda B and Obunga informal

settlements. The criterion for selection was that the unit should not have been selected in previous phases of the research. Compounds in the settlements are not organised in an orderly fashion thus, two teams of two research assistants each randomly selected compounds by moving through the selected unit from one end towards the other end, while ensuring that they covered all corners of the unit.

Upon arrival within a selected compound, the first priority for interviewing was given to the landlords and caretakers; if none were available, one tenant household was selected randomly. All respondents were adult household heads who were residents in the settlements. Respondents were interviewed by following a semi-structured interview guide that covered questions relating to sanitation decisions, the person involved in sanitation decision-making, and how these decisions were made. Using a semi-structured tool enabled probing and the clarification of answers, as well as the discovery of other areas of interest that might have been missed in the interview guide (Nieuwenhuis 2010, p. 87–88). One research assistant engaged the respondent in the conversation/interview, while the second assistant audio-recorded the interview. The second assistant also observed the respondent's body language and occasionally probed for clarification.

After the interview, the research assistants checked the sanitation facilities (if available) to confirm what was said by the respondents. Absentee landlords were also identified, followed up and interviewed. The interviews with the respondents continued until it was felt that new information was not forthcoming, by which time 39 interviews had been conducted. The sample size was deemed adequate based on the principles of qualitative research where the emphasis is on providing a detailed and in-depth account of the subject under study (Creswell 2012, p. 209). The guiding principle was that the sample size ought to be large enough to achieve data saturation and support conclusions, but not too large to hinder deep analysis (Cohen et al. 2011, p. 162; Bryman 2012, p. 421, 425).

Ethical clearance was granted by Stellenbosch University's Research Ethics Committee. The study was also approved by the National Research body in Kenya. A clearance letter was obtained from the Kisumu County education office, and permission was granted by the chiefs within the settlements. Before any interview, the aims of the study and their rights and requirements as participants were explained to the respondents. The respondents gave oral consent for participating in the study.

### **Data management and analysis**

In grounded theory, data analysis is usually guided by the constant comparative approach, in which the researcher collects data and sorts it into categories, then collects more data and compares the new information with the emerging categories (Creswell 2012, p. 434). Analysis began during data collection and was done mainly through listening to the respondents, analysing body language and words used, and probing to get more information on issues that were not clear. At the end of each day, notes were made about the highlight of the day and any cases that were 'abnormal' and needed follow-up were noted so that the follow-up was done in subsequent interviews. Discussions were held with the research assistants at the end of each day to identify any themes related to decision-making that came to the fore in the course of the day. Through such discussions, other issues that might have been missed were identified and followed up in subsequent interviews.

After data collection, the audio-recorded interviews were transcribed verbatim in Microsoft Word. Each transcript was read and re-read to understand the respondent's story as it related to decision-making. By reading through the transcripts and the daily summaries, some codes explaining decision-making emerged and were noted. The transcripts were then transferred to ATLAS.ti, which is a computer-assisted qualitative data analysis software. In ATLAS.ti, the transcripts were coded (inductively) using the codes that had been identified. As new codes emerged, they were added to the list of codes and each transcript was read again and coded according to the new codes (if applicable). The codes were then grouped into 'families', which were the main themes that were used to explain the results. These emergent themes were compared against the objective to assess if they were adequate to provide a rich explanation of the objective. One feature of the grounded theory approach that this study tried to adopt was that it leads to a rich account that is 'grounded' in the data, and to the

building of a theory that is usually identified inductively from the data (Green & Thorogood 2004, p. 180–181). Therefore, rather than investigating decision-making from an already existing theory, such as the Jenkins and Scott (2007) decision-making model, this study, sought to understand and explain decision-making by building a case from the data.

To ensure rigour and validity, issues of decision-making that emerged in the earlier phases of the study were used to triangulate the information obtained during this stage. The results obtained from one group of respondents (e.g. tenants) were compared with the results from another group (e.g. landlords). Discussions with assistants and beginning analysis early enabled the identification of issues for follow-up. A few transcripts were read by another researcher to countercheck if there were any highlights that had not been captured.

## Results

Respondents from 34 compounds were interviewed. These respondents were live-in landlords, caretakers and tenants – 21 tenants, 11 live-in landlords and 3 caretakers. An additional five absentee landlords were interviewed, making it a total of 39 interviews. Of the 34 compounds that were visited, 19 had pit latrines and 15 had no toilets. The majority (10) of these compounds lacked sanitation facilities because their latrines had collapsed, while the rest of the compounds had never had sanitation facilities. Among the compounds with sanitation facilities, two latrines were not in use because they were filled up. Figures 1 and 2 show examples of a functional pit latrine and a dysfunctional pit latrine, respectively.

Respondents from compounds without sanitation facilities or compounds with filled-up latrines used facilities in neighbouring compounds, with a few admitting to defecating in the open or using plastic bags.

The results will be presented under three main headings: type of decisions and individuals involved in decision-making, the decision-making process and factors influencing sanitation decisions.

### *Type of decisions and individuals involved in sanitation decision-making*

Four sanitation decisions were typical: decisions to invest in or construct sanitation facilities, to repair a sanitation facility, to empty a sanitation facility and on maintenance (cleaning) of sanitation facilities. These decisions were dependent on the availability of a sanitation facility within the compound. When a compound lacked a sanitation facility, the main decision to be made was the construction of



**Figure 1.** A functional pit latrine.



**Figure 2** . A dysfunctional pit latrine: it was full and had collapsed.

(or investment in) a sanitation facility. In compounds with sanitation facilities, decisions included making repairs to pit latrines (such as the superstructure), emptying filled-up latrines and cleaning the latrines.

The main people involved in making decisions relating to sanitation were landlords and tenants. In compounds with a caretaker, the caretaker was also involved in decision-making, but often after consulting the landlord and/or tenants. Landlords mainly made decisions on sanitation construction (investment) and repair. Live-in landlords made decisions on the repair and emptying of sanitation facilities, unlike absentee landlords who were less likely to make decisions on repair or emptying. Live-in landlords often left decision-making on the cleaning of sanitation facilities to their tenants, although some landlords were still involved in making these cleaning decisions.

Tenants rarely made decisions to construct or invest in sanitation facilities; they reported their sanitation needs to their landlords. On a few occasions, however, tenants, especially those in compounds with absentee landlords, made decisions to construct, repair and/or empty filled-up sanitation facilities.

In general, the respondents felt that decisions on cleaning sanitation facilities ought to be made by tenants, while decisions on investing in sanitation facilities ought to be made by landlords. The tenants felt that decisions on emptying and repairs should be made by landlords, and indeed most live-in landlords made these decisions. Absentee landlords, on the other hand, felt that tenants ought to make decisions on repair and emptying. Figures 3 and 4 summarise the sanitation decisions made and the individuals making these decisions in compounds with live-in landlords and those with absentee landlords.

### **Decision-making process**

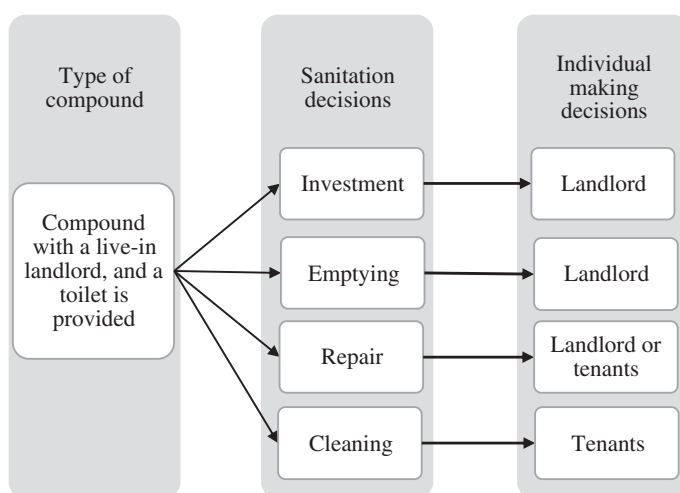
Sanitation decisions were made in three main ways: individually (without consultation), by consulting another individual, or collectively.

#### **Landlords**

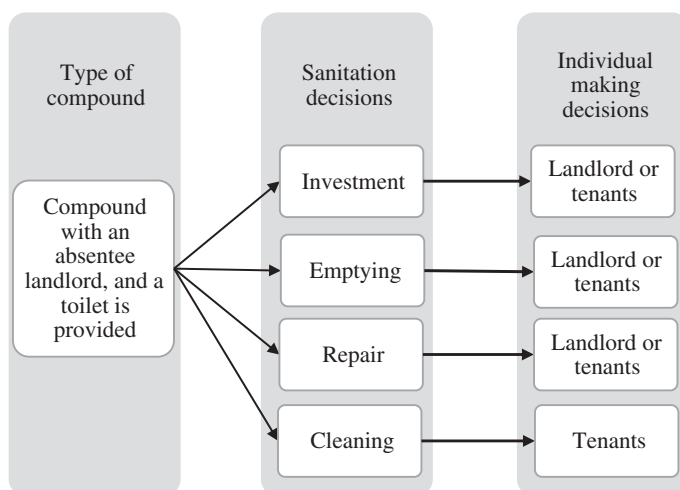
Landlords, especially live-in landlords, made decisions to invest in sanitation facilities individually with little consultation, and without the involvement of tenants.

- ... I consult no one, not even the tenants, all I do is get the money I need and go ahead with what I need to do
- ... [A male landlord]





**Figure 3 .** Shared sanitation decision-making in a compound with a live-in landlord.



**Figure 4 .** Shared sanitation decision-making in a compound with an absentee landlord.

Other times, landlords consulted or informed their immediate family members, such as spouses or their grown children when making decisions to construct sanitation facilities. One landlady confirmed talking to her grown up child:

... I talk to my son ... he helps me make decisions on how to manage the compound ...

Outside the family unit, landlords made mention of talking to friends and/or neighbours, primarily for advice. They consulted specialists such as masons and pit latrine emptiers to get expert advice, quotations of prices or actual sanitation services. A landlord confirmed this by saying:

... I consult my neighbour who has constructed one [a toilet] ... then I talk to the fundi [mason] ...

In terms of repair/emptying, live-in landlords made decisions in the same manner with little consultation from tenants. In compounds with a caretaker, landlords consulted the caretakers. Most absentee landlords let the tenants make all decisions on construction, repair, emptying and cleaning. However, a few absentee landlords took full responsibility and made these decisions.

## Tenants

Tenants made decisions individually, by consulting a second party, or collectively.

Tenants rarely made decisions on investing in sanitation. Those living in compounds without sanitation facilities informed their landlords; and when their landlords delayed constructing sanitation facilities, they found alternatives. On a few occasions tenants made decisions to construct sanitation facilities. The decision-making process sometimes was initiated by one individual and conveyed to all tenants; and at other times, tenants made decisions collectively. They then used their rent money to pay for the sanitation costs, as they believed it to be the landlord's responsibility. Tenants in two compounds had used their rent money to construct a sanitation facility. When asked about the source of funds for constructing their pit latrine, a tenant in one of the compounds answered:

... we used our rent, we cannot pay for it ... that is the landlord's responsibility ...

In matters of emptying or repairing sanitation facilities, tenants, especially those in compounds with absentee landlords, informed or consulted the landlord before making any decisions. The decision-making process usually began with an individual. Individuals raised their sanitation needs by communicating directly with their landlords. It was also common for the decision-making process to begin with an individual, who then discussed it with his/her household members before informing the landlord. A male tenant described the process by saying:

... Women tell their husbands, who then tell the landlord ...

Decision-making among tenants also began with one household/individual and then was conveyed to other households within the compound. Describing how tenants agreed to participate in raising funds for emptying their filled-up pit latrine, a female tenant described the following process:

... I talked to my husband [about emptying the filled up pit latrine], I also talked to my neighbours on this side and also to those on the other side ...

Tenants also made decisions on investing, repairing and emptying by having a collective discussion among themselves in the compound. From the discussion in such meetings they made decisions regarding their sanitation facilities.

Outside the compound, when tenants needed minor repairs to their sanitation facilities, some consulted their friends, especially those with some basic masonry skills. These friends made the needed repairs, especially if there were good relationships between them. Again, such decisions were initiated by an individual or a few compound members who had friends who could assist.

In compounds with a caretaker, concerns of construction, emptying or repair were raised by individual tenants with the caretaker. The caretaker either made a decision, informed the landlord, or organised a meeting with all compound members. A tenant described this process by saying:

... If anyone notices a problem [related to the toilet], they inform the caretaker. The caretaker informs the landlord ...

Aside from an individual's effort, the decision-making process also originated from an individual speaking to his/her household members, and then the issue was raised with the caretaker. Other times, the household discussed the matter with other members within the compound. A decision would then be made individually (for instance, by the caretaker) or collectively.

Maintenance (cleaning) decisions among tenants were made in a similar fashion as construction/repair decisions. In most compounds, irrespective of whether the landlord was present or absent, tenants were responsible for making decisions on cleaning the sanitation facilities. Some compounds did not have any defined plans/structures to clean their sanitation facilities. In such circumstances, tenants generally made voluntary decisions to clean their sanitation facilities.

... Anyone ....who is willing....cleans the toilet [a tenant]

In other instances, tenants (mostly women) initiated the decision-making process by consulting fellow tenants and/or the caretaker. Describing how they devised a maintenance plan for their pit latrine, a female tenant described what she did:

... I just spoke to them [tenants] and we agreed ... I talked to that one and the other one too and they agreed ...

In other compounds, especially those with some leadership structure, maintenance/cleaning decisions were made collectively, often during meetings within the compound.

... People [tenants] decided to meet [collectively] to discuss these [sanitation] issues ...

During these meetings, cleaning arrangements would be defined or revised. Compound members would then be expected to abide by the decisions that were agreed upon collectively.

Figure 5 summarises a tenant's decision-making process.

Tenants in compounds with a leader/caretaker or in compounds with an absentee landlord had several individuals to consult, and the decision-making process was complex. Those tenants in compounds with live-in landlords did not have such a complex decision-making process because landlords made most of the decisions, such as on investment, emptying, repair.

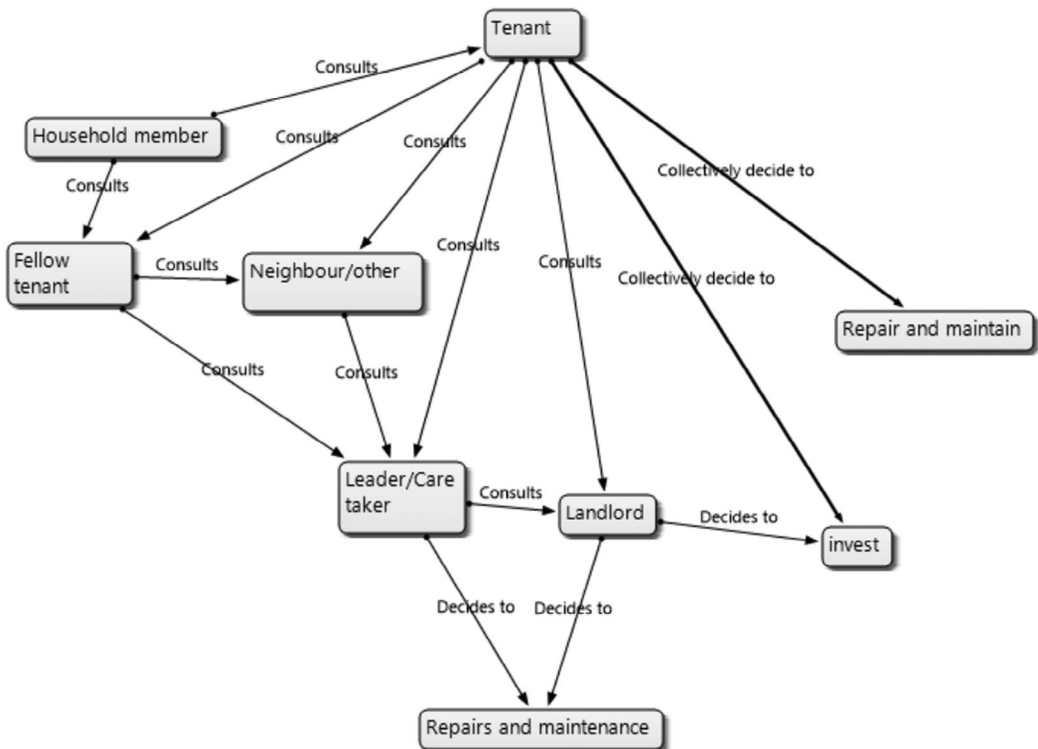
### **Factors influencing sanitation decision-making in Kisumu's informal settlements**

#### **Tenure security and feeling of ownership**

Irrespective of whether compounds had sanitation facilities or not, the respondents felt that landlords were responsible for the construction of sanitation facilities. Landlords were owners and 'permanent residents' in the settlements unlike tenants who were 'temporary' and more likely to relocate to other areas.

I pay rent ... construction and repair are the landlord's duty ... one day I will move to another place ... why [should I] construct or repair a toilet? [A tenant]

Landlords also confirmed that tenants often did not agree to pay directly for investment in sanitation because they felt that it was the landlord's responsibility.



**Figure 5.** Shared sanitation decision-making process of tenants (developed in ATLAS.ti). NB: Maintenance includes emptying.

### ***Cooperation of landlords***

Tenants mentioned that landlords took long to respond to their sanitation needs, such as the construction of sanitation facilities or the repair of existing facilities. They also claimed that landlords totally ignored their demands for sanitation, and only focused on collecting rent. It also emerged that some landlords gave false promises to their tenants about constructing sanitation facilities. These landlords, who were mostly absentee landlords, asked their tenants to pay their rent in time with the promise that their rent would be channelled towards the construction of sanitation facilities. A tenant who had been living in a compound without a toilet said:

The landlord just comes to collect rent ... when we tell him about the toilet, he says 'Just wait, I will construct it this month' ...

Tenants banked on their landlords' promises, but the landlords often did not keep their word. Due to such delays, false promises and disregard by landlords, some tenants chose to use their rent to cater for sanitation costs such as construction, emptying and/or repairs.

### ***Relationship between landlords and tenants***

In most cases, tenants informed their landlords before channelling their rent to the repair or construction of sanitation facilities. If the tenants and the landlord had a good relationship, or if the landlord was understanding, he/she allowed his/her tenants to channel their rent to sanitation. In other cases, however, especially in the case of absentee landlords who did not have a friendly relationship with their tenants and did not respond to their tenants' requests to provide sanitation facilities, some tenants withheld their rent without consulting their landlords, hoping to invest it in the construction of sanitation facilities. Such actions often led to disagreements between landlords and tenants.

... If we fail to pay rent and use it for constructing a toilet, we might have conflict, he says that we want to take over his plot ... [A tenant in a compound without a toilet, and with an absentee landlord]

Sometimes landlords asked tenants who withheld their rent to vacate their premises.

When there was a good relationship between live-in landlords who had sanitation facilities and tenants from neighbouring compounds that lacked sanitation facilities, the landlords would allow these tenants to use the sanitation facilities within the landlord's compound. The landlords of the compounds without sanitation facilities (whose tenants use the neighbouring compounds with sanitation facilities) would then share the costs of the repair and/or emptying of filled-up latrines with their neighbouring landlords.

### ***Level of co-operation between tenants in a compound***

Tenants often decided collectively that they would not pay their rent until their landlords constructed sanitation facilities. However, some tenants still paid their rent, making the other tenants appear defiant. Due to this lack of co-operation, all tenants eventually end up paying their rent and thus their compounds remain without sanitation facilities.

Landlords, on the other hand, take advantage of the lack of co-operation among the tenants and ask tenants who refused to pay rent to vacate their premises; knowing that other new tenants would be willing to take up the vacant housing units. However, some landlords admitted that they did this in a subtle way because they were aware that they were required to provide sanitation facilities.

They [tenants] can decide to report to the chief ... so we find a way of talking to them [tenants] so that they pay ... [A landlord whose compound lacked sanitation facilities]

In terms of cleaning shared sanitation facilities, even though there were toilet cleaning plans/rotas in some compounds, some tenants were not cooperative and did not carry out their cleaning responsibilities. Other tenants in the compound therefore, cleaned up the sanitation facilities.

... Some neighbours soil the toilet but do not clean ... I end up cleaning ... [A tenant]

Since live-in landlords felt responsible for the sanitation facilities within their compound, they sometimes were involved in making decisions related to the cleaning of sanitation facilities. They/their households cleaned the sanitation facilities, or they instructed tenants to clean the facilities.

### **Economic/financial factors**

**Lack of finances.** Despite acknowledging that they were responsible for the construction of sanitation facilities, most landlords who had not done so confessed that they lacked finances for investing in sanitation facilities.

**Sanitation as a source of income.** Due to the lack of sanitation facilities in many compounds, some live-in landlords allowed tenants from neighbouring compounds who lacked sanitation facilities to use the sanitation facilities in their compounds. Sometimes this use was based on friendliness or good relations, but most of the time these tenants were required to share the costs of pit latrine-emptying. Tenants agreed to such arrangements because they lacked sanitation facilities and/or their landlords were seemingly reluctant to respond to their needs, which rendered them desperate. Users generally contributed between 100 and 250 Kenyan Shillings<sup>1</sup> per household every time there was a need to empty the pit latrines.

We use our neighbour's toilet ... when it fills up, we contribute for emptying.

On the other hand, some live-in landlords took advantage of the prevalent lack of sanitation facilities in the settlements to make extra income by asking users to pay per use. One landlady explained that she allowed other people to use her toilet but they all had to pay:

My toilet is used by my tenants, people from the kindergarten, and people who do not have toilets ... they have to pay before use.

**Using sanitation to increase income.** Other landlords constructed sanitation facilities because of financial gains that resulted from compounds that had sanitation facilities. Due to the prevalent lack of sanitation facilities in many compounds, new tenants asked for sanitation facilities. Landlords were thus, obliged to construct sanitation facilities in order to ensure that they had tenants, and thus, a steady source of income. According to one landlord:

No one will rent my house if there is no toilet ... in order to get tenants, it is better to construct a toilet.

### **Living conditions within the informal settlements**

A group of three landlords living close to each other had devised a way of dealing with the frequent collapse of pit latrines. They had agreed to take turns to construct/invest in one pit latrine that would be shared by all tenants in their compounds. When the one pit latrine became filled up or collapsed, the next landlord would finance the construction of another pit latrine. Tenants from the three compounds would all use the one pit latrine. This strategy was to save on costs of construction per landlord, and it worked if there were good relations between the landlords and tenants. One landlord explained it thus:

The soil in this area is not good ... we can construct a toilet today, and soon after, it collapses ... we are tired ... what we have decided as landlords who have compounds next to one another is that we will be constructing toilets in turns. For example, the landlord from that compound constructs a toilet this time, and I then do it next time; then our tenants will always have a toilet to use and we will not spend a lot ...

When sanitation facilities are not provided, some tenants move to compounds with sanitation facilities. For example, three tenants living in compounds with sanitation facilities mentioned that they had relocated from their previous compounds because 'of a lack of a toilet', while two tenants in compounds without sanitation facilities mentioned that they were planning to relocate. Other tenants, however, continued living in the compounds without sanitation facilities. Those tenants who did not relocate admitted that they lingered at their compounds because of the scarcity of housing, financial challenges, proximity to services and, sometimes, good relations with their landlords; as noted in their responses:

I cannot vacate because this place is safe and close to the road ...

I stay on because the landlord understands when I do not pay my rent in time ... in other compounds they may not be as understanding ...

When tenants made the decision to live-in compounds without sanitation facilities, they sought for alternative solutions such as using sanitation facilities in neighbouring compounds.

### ***Effect of land inheritance and absenteeism among landlords***

A number of landowners inherited their compounds from their late parents or grandparents but did not live within the compounds (thereby becoming absentee landlords). Some of the absentee landlords showed little responsibility for the compounds that they inherited, hence the lack of sanitation facilities in most of their compounds. Some of the tenants in these compounds were friends with the landowners, as they had lived in the compounds for a long time. Based on this friendship and the apparent lack of concern by their landlords, some of these tenants did not pay their rent in time. Due to such delays in rent payment, absentee landlords did not make any improvements to the housing units or to the sanitation facilities (if there were any). The tenants therefore continued living in these compounds without sanitation facilities because of the low cost of living, and they found alternatives for their sanitation needs such as toilets in neighbouring compounds.

### ***Gender differences in sanitation decision-making***

Also emergent from the results was the difference in decision-making between men and women. It was noted that men often made decisions on sanitation construction. Thus, landlords (male) would often make construction and/or repair decisions individually or by consulting masons and by informing their households. Women on the other hand always consulted a male counterpart (husband, son or mason) on decisions regarding construction, emptying and/or repair.

Women, however, were at the forefront in making decisions regarding the cleaning of sanitation facilities in the compound, and it was common for them to make cleaning decisions without consulting their husbands or male counterparts. In other instances, when sanitation decisions were made collectively in the compound, women influenced the decision-making process by raising any sanitation concerns with their husbands for discussion during compound meetings. Men were less involved in making decisions concerning the cleaning of sanitation facilities, and they would often forward these decisions to their wives or other women in the compound.

Table 1 summarises these factors influencing sanitation decision-making, the individuals affected by these factors and how these individuals are influenced.

## **Discussion**

In the informal settlements of most developing countries, sanitation facilities are often shared among a number of households, and the most dominant sanitation technology is the pit latrine (traditional pit latrine, simple pit latrine or ventilated improved pit latrine) (Nakagiri et al. 2016). Sanitation decisions that need to be made in such a context include investment in, repair, emptying and maintenance (cleaning) of these latrines.

Investment in sanitation is perhaps the first decision that needs to be made by most households. While, it would be ideal that governments provide sanitation to all, most governments in developing countries are faced with limited public finances, hence, their seemingly absent roles in providing sanitation in informal settlements (Galli et al. 2014). In Kenya, in particular, it is clear from the Environmental Hygiene and Sanitation Policy (2016–2030) that households are mandated not only to bear the costs of provision, but also the costs of operation and maintenance (Republic of Kenya 2016, p. 34, 76). The policy mandates landlords and property owners in informal settlements to provide sanitation facilities (Republic of Kenya 2016, p. 76). This scenario is not peculiar to Kenya alone, as studies indicate that the responsibility for the provision of sanitation is often upon landowners (Isunju

**Table 1.** Factors influencing sanitation decision-making and the effect on landlords and tenants in Kisumu's informal settlements.

Factors	Person affected	How
Tenure security	Tenant	Negatively (inability to invest in sanitation)
Uncooperative landlords	Tenant	Negatively (lack of sanitation)
Good relationship between landlords and tenants	Tenant	Positively (availability of and responsibility for sanitation)
	Absentee landlord	Positively (availability and maintenance of sanitation)
Poor relationship between landlords and tenants	Tenant	Negatively (lack of sanitation)
Uncooperative tenants	Tenants	Negatively (lack of and unhygienic sanitation)
	Landlords	Positively (opportunity to use sanitation for income)
Lack of finances	Tenant	Negatively (lack of sanitation)
Using sanitation to increase income	Landlord	Positively (financial gains)
	Tenant	Negatively (increased rent)
		Positively (availability of sanitation)
Sanitation as a source of income	Landlord	Positively (income generation)
Living conditions	Landlords	Positively (less costs for sanitation)
		Negatively (hinders pit latrine construction)
	Tenants	Negatively (lack of sanitation)
Land inheritance/absenteeism	Tenant	Negatively (lack of sanitation)
Gender differences	Tenant and landlord	Negatively (lack of male involvement in some decisions)

et al. 2013). However, as indicated in the results of this study, not all landlords provide sanitation facilities. Live-in landlords are more likely to invest in sanitation facilities than absentee landlords. Live-in landlords make decisions to invest in sanitation because they live within the premises, hence, they might make use of the sanitation facilities. Absentee landlords live away from the premises where their tenants live and do not treat the provision of sanitation as a priority. What these results therefore suggest is the need to target absentee landlords in both sanitation promotion and policy enforcement efforts.

Regarding finances, the findings highlight that finances influence sanitation investment decisions, either positively or negatively. In this and in other studies, a lack of finance is noted as a reason for the non-adoption or lack of sanitation facilities, which limits the availability of sanitation facilities (Jenkins & Scott 2007; Nimoh & Poku 2014; Okurut & Charles 2014; Chunga et al. 2016). On the other hand, this study, suggests that landlords may use sanitation to increase rent or make extra income, a finding that has been noted in other studies (Isunju et al. 2013; Chunga et al. 2016; Simiyu, Swilling, Rheingans, et al. 2017). Tenants may thus, use this opportunity to demand sanitation, but when they cannot pay a higher amount of rent in compounds with sanitation facilities, these tenants may be forced to silence their demands for sanitation, leaving them without such facilities.

Some authors suggest that micro-finance from financial institutions can be a solution to the financial challenges faced by households (Isunju et al. 2013) while other studies suggest otherwise. In Ghana, for instance, households prefer to use their own funds to build their latrines as opposed to approaching micro-finance institutions (Nimoh & Poku 2014). From Tanzania, Kasala et al. (2016) report that households could access loans from a local community group for the construction of sanitation facilities. In Kenya, even though the policy mandates households to provide sanitation facilities, it also stipulates that micro-finance institutions can provide suitable financing (Republic of Kenya 2016, p. 76). These financial institutions should assess the economic status of landlords and target those who are financially constrained, while other landlords, especially those who can afford sanitation, should be obligated to provide these facilities.

Regarding sanitation investment decisions, live-in landlords rarely consult tenants in sanitation decision-making. These results are comparable to findings from Tanzania where only 4.5 % of landlords consulted other tenants in their compounds compared to 50 % of tenants who consulted other tenants on sanitation investment decisions (Milanesi 2010). In addition, these live-in landlords made decisions by consulting within the household, similarly mentioned by Nimoh and Poku (2014) from

Ghana. The reasons for this can be related to land tenure, which is a disadvantage to tenants who may not be willing to make any investments in property that they do not own, especially investments that require a huge capital investment such as sanitation. Due to the high costs of investing in sanitation, landowners have to involve members of the household because they end up using their household income and the costs have to be included in their household budget.

Sanitation decisions are also made by consulting individuals, such as neighbours and masons. The influence of such individuals in Kisumu can be linked to findings from a study by Tsinda et al. (2015), who report that households in Kisumu's informal settlements asked for sanitation advice from shop owners, local pit latrine emptiers and masons, and that residents marketed the services of these local experts through referral or word of mouth. These results suggest that individuals are likely to invest in sanitation technologies because they have seen them at friends or have received recommendations about them, pointing to a strategy for increasing the uptake of sanitation facilities. Friends and neighbours can influence investment in sanitation by giving advice, especially if they have household sanitation facilities. Live-in landlords in Kisumu's informal settlements can positively influence other landlords by encouraging them to construct sanitation facilities.

The underlying argument therefore, is that decisions on sanitation are rarely made by a single person and usually will involve household members and external persons, as reiterated by O'Keefe et al. (2015). This situation may partly be due to the huge capital investment required for sanitation, which further limits decision-making by both landlords and tenants. In making decisions that require huge capital investments such as sanitation (which is usually shared in informal settlements), tenants would consult with fellow tenants because the costs would be shared among the users (making it less costly per person), and there is a feeling of security in numbers. This study therefore, reveals that several sanitation decisions are usually made in informal settlements and the decision-making process can be complex (exemplified by Figures 3–5), especially for tenants. Messages and efforts promoting sanitation uptake therefore, need to incorporate the influence of other individuals in decision-making.

In addition to investment decisions, the results of the present study indicate that the repair and emptying of sanitation facilities are viewed as the landlord's responsibility although not all landlords are fully involved. Absentee landlords are less involved, while live-in landlords often make decisions on (and pay for) sanitation repair and emptying. The same practice is portrayed by live-in landlords in the informal settlements of Kampala and Dar es Salaam (Isunju et al. 2013), as well as in Dakar (Scott et al. 2013). On a few occasions, decisions on (and payment for) the repair and emptying of sanitation facilities were made by both landlords and tenants, as it was the case in Tanzania (Jenkins et al. 2015) and Senegal (Scott et al. 2013). These findings signify that inadequacy in sanitation in informal settlements is not always due to a lack of finances; it could also be due to individuals not taking up their roles as required, as exemplified by absentee landlords who fail to show responsibility for their tenants.

Irresponsibility is shown by laxity among absentee landlords in investing in and emptying sanitation facilities. It may be possible that these landlords feel that being regular users, tenants ought to be responsible for making decisions on and paying for the emptying of pit latrines. Previous studies in the settlements indicate that most residents prefer using the services of manual pit latrine emptiers over mechanical emptying by the municipality using tankers (Simiyu 2015). The manual emptiers are preferred as they are readily available, reliable and cheaper. The emptying of filled latrines is as expensive and difficult for tenants to organise and pay for as investment in sanitation. Emptying is crucial, however, because if latrines are not emptied, users are likely to revert to unhygienic options such as open defecation. In addition, some tenants who are not able to raise the finances required for emptying or for repairs may be locked out of benefitting from sanitation facilities. The findings of the study show that good relationships between landlords and tenants can also result in adequate sanitation. Landlords and tenants can thus work together and devise strategies to share the costs of sanitation. By so doing, both landlords and tenants will harness the benefits of adequate sanitation.

Apart from investment in and emptying sanitation facilities, maintenance, particularly the cleaning of shared sanitation facilities is very critical and it is mainly done by tenants. A lack of cooperation among tenants in the cleaning of sanitation facilities leads to individual tenants volunteering to clean



sanitation facilities in their compounds. Since most sanitation facilities in informal settlements are shared, decision-making on the cleaning and maintenance of sanitation facilities is best done collectively. If all users are not involved in such decision-making, they are likely to make decisions that lead to maximum individual benefit as opposed to benefits for all users. The desire to maximise personal benefit, for example, is the reason why some tenants do not clean sanitation facilities but rather leave the responsibility to the few who volunteer to do so. Lack of cooperation can also lead to practices that are not sustainable in the long run, and that can result in individuals using unhygienic sanitation facilities, sentiments similarly aired by Simiyu, Swilling, Cairncross, et al. (2017). The collective benefits that accrue from collective action lead McGranahan (2015) to advocate for collective decision-making in sanitation at all levels, as it can lead to the desired change even in informal settlements.

## Conclusion

Unlike most quantitative economic studies that have highlighted aspects of decision-making on sanitation in informal settlements, this study, takes on a qualitative approach to investigate decision-making about shared sanitation in Kisumu city's informal settlements. Emergent are the different sanitation decisions made, the individuals involved and the factors influencing these sanitation decisions. This study has highlighted that most sanitation facilities in informal settlements are shared among households, and sanitation decisions are not just about investment, but also about maintenance. Pit latrines are the most common sanitation technology in Kisumu's informal settlements, and hence, sanitation decisions include investment in sanitation, emptying filled-up latrines and the repair and cleaning of latrines. Landlords are providers of sanitation and often make decisions on investment. Most live-in landlords also make decisions related to emptying and repair. Absentee landlords are less involved in decision-making and often leave it to tenants to make most sanitation decisions. Tenants often make decisions on sanitation maintenance (such as cleaning) collectively.

In informal settlements in most developing countries, decision-making on sanitation is complex because of the various challenges in the settlements, such as insecure land tenure, poverty and sharing of sanitation. Households often have to pay for the costs of sanitation. The decision-making process takes a spiral form, originating from one person and involving several other individuals from within and beyond the household.

## Limitations

The results presented in this manuscript are applicable to sanitation facilities that are located in a plot/compound and used only by households within the plot/compound. Decision-making on individual sanitation (i.e. a sanitation facility used only by one household), or on communal sanitation facilities (i.e. sanitation facilities located within the community and used by any community member), may be different. In terms of sanitation technologies, the study was limited to simple pit latrines, as they are the most dominant sanitation technology. The results of this study may be applicable to informal settlements with similar conditions to those in Kisumu, and further research may be conducted to assess the situation in settlements in different contexts.

## Implications

This study has highlighted that several sanitation decisions are made in informal settlements. This finding points to the need to define these different areas of decision-making in research studies and development projects. These studies and projects should target the individuals making the various decisions. Interventions regarding investment should target landlords, while those concerning maintenance (cleaning) should target tenants. These interventions should also include aspects of co-operation that encourage landlords and tenants to work together to clearly define their roles and responsibilities.

Other influential individuals should also be included as targets. These individuals, who could influence decision-making, can promote behaviour change and residents can learn from them. These individuals could include masons who give advice, community leaders, and live-in landlords who have sanitation facilities within their compounds. Women should also be included, as they play a significant role in the maintenance of shared sanitation facilities.

The results also reveal other factors that influence decision-making in the settlements. These results imply that sanitation challenges cannot be tackled in isolation because other challenges in informal settlements may derail sanitation efforts. Interventions aimed at addressing sanitation challenges should also incorporate other challenges in informal settlements related to sanitation, while promoting hygiene practices such as the cleaning of shared sanitation facilities.

From a regulatory perspective, the municipality ought to enforce regulations requiring landlords, especially absentee landlords in Kisumu to construct sanitation facilities. The municipality can work together with community leaders to identify financially challenged landlords and opportunities for financing. Regulation should incorporate aspects that ensure that sanitation facilities are in proper, useable condition (for instance, requiring that full pit latrines be emptied).

## Geolocation information

Africa, East Africa, Kenya, Kisumu.

## Note

1. 100 Kenyan Shillings = 1 USD.

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