



Sanitation and Hygiene: Policy, Stated Beliefs and Actual Practice A Case Study in the Burera District, Rwanda

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Cover photo: Leader of the Dusukure PHAST Ecosan cooperative,
Rwanda, outside a UDDT toilet © Nelson Ekane

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Sanitation and Hygiene: Policy, Stated Beliefs and Actual Practice

A Case Study in the Burera District, Rwanda

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ABSTRACT

“Institutional multiplicity” is inherent in several sectors of human society. In many developing countries, an example of such multiplicity is the mismatch between prescribed sanitation and hygiene policy and prevailing practices, which is a major challenge in efforts to improve sanitation coverage and hygiene behaviour. In Rwanda, sanitation and hygiene are high on the government’s development agenda, and it prescribes a range of guidelines and standards for toilet technologies appropriate for different regions. This working paper presents these prescribed guidelines and standards, specifically those pertaining to urine diversion dry toilets (UDDTs), as well as those on the use of treated human excreta as fertilizer, and on pit latrines (“drop and store”). It then describes how these guidelines and standards are enforced at the community level – specifically in the Rugarama sector, Burera District – and presents the prevailing sanitation and hygiene norms and practices, moving on to discuss how and why the prescribed guidelines and standards match or do not match prevailing practices. This case was selected in part because the United Nations Children’s Fund (UNICEF) in Rwanda is carrying out a water, sanitation and hygiene (WASH) project in the Burera district and three other districts in the northwestern region of the country. Qualitative research methods such as semi-structured interviews, focus group discussions, and direct observation were used to collect data in the Rugarama sector. The case study area consisted of two communities: one in Cyahi cell, which predominantly uses pit toilets, and a second community located nearby in Gafumba and Karangara cells, which predominantly uses UDDTs, and also applies sanitized excreta in farms. This study shows that health, hygiene, convenience, and safety aspects of sanitation in the study area remain unsatisfactory, and are not aligned with national guidelines and standards. Most of the toilets in these communities are neither properly constructed nor properly used. Reasons for the contradictions between prevailing practice and national guidelines and standards include the following: people do not place a high priority on toilets; financial constraints limit household investment in toilets; there is a lack of proper understanding of prescribed sanitation and hygiene guidelines and standards; and there are challenges in carrying out sanitary inspections. For the productive sanitation system in particular, poor understanding of how the system works was identified as the main cause of the mismatch between standards and practice. This study posits that a common understanding of prescribed guidelines and standards at all levels of society is vital to ensure health and safety, improved livelihoods, and to maintain minimum hygiene and sanitation standards. Furthermore, improved understanding of the importance of having properly constructed and well maintained sanitation and hygiene facilities will, undoubtedly, create a demand for such facilities irrespective of the economic hindrances reported by most community members.

Keywords: Rwanda, sanitation, productive sanitation, pit toilet, policy, practice, norms

1. INTRODUCTION

1.1 Background

Millennium Development Goal (MDG) 7, Target 10, aims to “Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation.” A majority of the 2.5 billion people without access to improved sanitation and hygiene facilities reside in developing countries, and progress towards MDG 7, Target 10 still lags far behind many other MDG targets. Current trends clearly show that most developing countries will miss Target 10, and some by more than others (WHO/UNICEF JMP, 2012). The World Health Organisation (WHO)/United Nations Children’s Fund (UNICEF) Joint Monitoring Programme (2012) reports that only 30% of the population in sub-Saharan Africa (SSA) use improved private sanitation and hygiene facilities, which is the lowest figure for any region of the world. This same report shows a mere 4% change in improved sanitation and hygiene coverage from 1990 to 2010 in SSA, again, the least in the world. SSA accounts for 565 million of the 2.5 billion people without access to improved sanitation, and a whopping majority of these people live in rural areas and peri-urban slum settlements, where there is currently a great lack of access to proper sanitation and hygiene facilities (Szántó et al., 2012).

Why has progress in the sanitation and hygiene sector remained sluggish in SSA? What is needed to maintain proper or at least minimum sanitation and hygiene standards in the region, and to catalyze the gains in sanitation and hygiene coverage that have been made? What are the obstacles to progress? These questions, among others, are highlighted and discussed in this paper. Some have attributed the slow advances in the sanitation and hygiene sector in SSA to insufficient investment, poorly coordinated interventions, governance deficiencies (especially the lack of adequate institutional and organizational framework), and a lack of political commitment and leadership. Despite these issues, many countries in the region are poised to address the sanitation and hygiene challenges and accelerate progress towards the MDG Target 10. Furthermore, a good number of these countries have formulated sanitation and hygiene policies.¹ However, these policies are not always effective, chiefly because too often they remain only on paper and are not implemented. This may be as a result of poor institutional design – for example lack of clear boundary rules, insufficient monitoring, or sanctions that are not executed (Ostrom, 1990).

Effective policy needs to be implemented through laws, regulations, guidelines, standards, and incentives. Governments need to also clearly assign rights and responsibilities for implementing and enforcing policies. Policies should also be fully comprehensible, as well as effectively disseminated and practiced: they must be clearly understood by all relevant stakeholders, and the implementation must be monitored.

1.2 Rationale of the study

Most countries in SSA, including Rwanda,² now have national guidelines that prescribe sanitation and hygiene standards for toilet design, structure, location and condition, as well as for personal hygiene. However, since socio-cultural and economic factors to an extent shape prevailing behaviour and practice around sanitation and hygiene (Tanner 1995, WHO 2006),

¹ Policies are defined as the set of procedures, rules, and allocation mechanisms that provide the basis for programs and services. They set priorities and provide the framework within which resources are allocated for their implementation.

² Guideline for latrine technologies usable in Rwanda. Drafted by the Ministry of Infrastructure (MININFRA, 2011)

in reality guidelines and standards are often contradicted. This “institutional multiplicity”³ is most easily discernible in developing countries, especially those in SSA.

This paper explores the guidelines and standards on sanitation and hygiene in Rwanda, as well as prevailing behaviour and practice, and shows how and why these contradict and/or complement each other. It also examines two cases of on-site sanitation options that are presented in Rwanda’s national guidelines on latrine technologies. These two systems are: the “toilet to farm” urine-diversion dry toilet (UDDT, which includes use of treated human excreta as fertilizer, i.e. productive sanitation or “eco-toilets”), and the “drop and store” option (conventional on-site sanitation, i.e. pit latrine).

1.3 Theory of institutions

The word institution is ubiquitous and has no clear-cut definition. In the context of this paper, institution is examined as a source of both social order and social change. North (1990) considers institutions as humanly devised constraints imposed on human interaction. According to Ostrom (2005), institutions are regularized behaviours that have turned into routines. Institutions are also defined as the “rules of the game” in a society in which individual agents or organizations are the players (North, 1990; North, 2009). Amable (2003) adds that institutions are rules that provide information about how agents are expected to act in certain situations, and can be recognized by members of the relevant group as the rules to which others conform in these situations. Agents (i.e. individuals or organisations) embrace institutions as devices for coordination, for reducing uncertainty, and for implementing best response strategies. Thus institutions must be relevant for all agents, providing them with a common understanding of how the game is played. One can use the analogy of soccer to further characterize institutions; for example, the rules of soccer can be seen as the institutions, the players are the actors, the team is the organization, and the referees are the enforcer. Without rules and referees in soccer, fair play cannot be guaranteed. In the same way, without stable institutions life becomes chaotic and arduous (Campbell, 2004). Institutions are also viewed as equilibrium strategies. As equilibrium strategies, institutions emerge and stabilize through self enforcement – that is, through endogenous institutional change wherein agents work out new rules (Amable, 2003). Gérard (2004) distinguishes between types of institution that change slowly and continuously, and rapidly and irregularly. He classifies culture (including values, beliefs, and social norms) as a slow-moving institution and political institutions as fast-moving. According to Amable (2003) rules that are not socially shared cannot be considered to be institutions. Therefore, things that are specific to individuals and have no social dimension, such as rules of thumb and habits, do not qualify as institutions.

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. Similarly, Scott (1995), and Djelic and Quack (2003), present institutions as being both structures and formal systems and normative and cognitive frames which provide stability and meaning to social behaviour. It is worth noting that for designed institutions to function, both the formal and informal institutions must coincide or match each other (Khan, 1995; Kjellen, 2006). A common understanding of institutions, as well as the enforcement of these institutions, is necessary to make this happen.

³ Situations of multiple claims to governance, in which actors other than the state engage with the provision of basic services, the provision of security and settlement of disputes, etc.

Enforcement mechanisms need to be part and parcel of the institutional structure to ensure that people abide by it. Firstly, agents must acknowledge rules to be binding for them to be legitimized. Amable (2003) points out that the sanction accompanying non-compliance with formal rules is codified and formal (e.g. fines, sentences, etc.) whereas informal rules are not fully codified and non-compliance is not punishable by a formal authority. Sanctions related to informal rules may include social exclusion and impacts on social status, self esteem, or reputation. Individuals, groups or organizations internalize norms and values, which motivates them to respect and defend the status quo even in the absence of controls or sanctions.

In this paper we draw principally on North's (1990) definition of an institution as a set of formal rules and informal norms. Thus, we focus specifically on the following questions: what are the existing institutions (rules, norms, laws, customs etc.) pertaining to sanitation and hygiene? How are these formal and informal institutions followed and enforced? What sanitation and hygiene practices actually prevail? How do rules and norms conflict with or complement not only each other, but also actual sanitation and hygiene practices on the ground?

2. THE CONTEXT

2.1 Case study area

This study was carried out in three cells⁴ (or *Akagari*) – Gafumba, Karangara and Cyahi – in the Rugarama sector,⁵ Burera district, Rwanda (See Figure 1). The Burera district is a remote district in northern Rwanda and has more than 321,000 inhabitants. The Rugarama sector has over 22,154 inhabitants living in about 4,401 households. The average population density is about 599 people per km². The sector is situated at an altitude of about 2,100 m at the foot of a volcano, Mount Muhabura. The soil structure is mostly volcanic, which makes digging toilet pits to a depth of more than one metre an extremely difficult or impossible task. The annual precipitation in this mountainous region varies from 1,200 mm to 1,500 mm. More than 90% of the population is dependent on agriculture and related activities for their livelihoods. The entire volcanic region is the breadbasket of Rwanda, supplying food crops such as potato, cabbage, beans and maize. Most of the people living in this region are considered to be vulnerable, because the majority settled here when they returned from exile in neighboring countries (Kubwayo 2010).

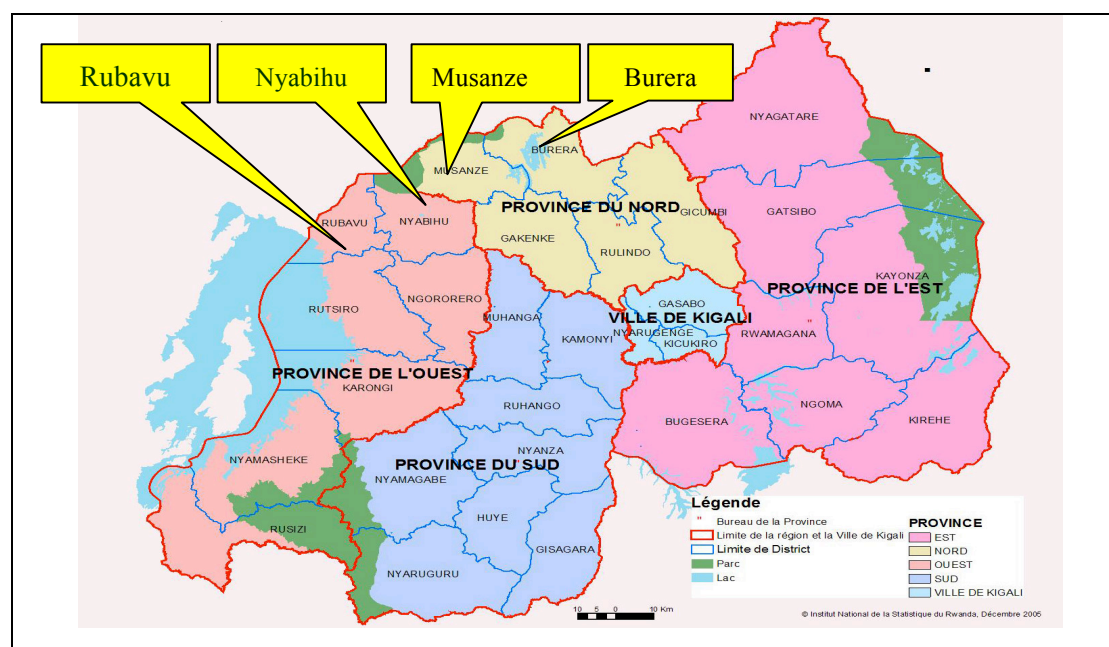
The Burera district is one of four districts in Rwanda where UNICEF-Rwanda, the Ministry of Infrastructure (MININFRA) and WASTE-Netherlands are implementing a water, sanitation and hygiene (WASH) project (See Figure 1). A survey conducted by the WASH project's National Project Management Unit (NPMU) in 62,043 households in Burera district shows that 36.6% of households have improved toilets and 14% of households have no toilets. This survey also revealed that 90.8% of households use soap and only 7.5% of households have handwashing facilities (NPMU 2011). Water and sanitation related diseases are prevalent in the Burera district due to the use of unsafe water sources and poor sanitation facilities. Shallow traditional pit toilets are the predominant type of sanitation solution in the district. In 2006, UNICEF-Rwanda, MININFRA and WASTE Netherlands introduced UDDTs, including use of treated human excreta as fertilizer, in the entire north-western

⁴ A "cell" is one of the smallest administrative divisions in Rwanda.

⁵ "Sector" translates as "*Umurenge*" in Kinyarwanda.

region of Rwanda, and are working with local authorities and communities to promote productive sanitation. About 1,000 UDDT slabs were distributed in the Burera district to vulnerable households. UNICEF-Rwanda provided training on productive sanitation to thirty people (15 men and 15 women) from the district. These trainees in turn trained 3,400 people from all walks of life and a range of sectors. The principal methodology used in training was that of the Participatory Hygiene and Sanitation Transformation Series (PHAST),⁶ while the Hygiène et Assainissement en Milieu Scolaire (HAMS) methodology was also used for training in schools. UNICEF-Rwanda facilitated the formation of productive sanitation cooperatives, such as the Dusukure PHAST Cooperative in the Rugarama sector. This cooperative is championed by a few dynamic and committed villagers in the Gafumba and Karangara cells. About 80 UDDT slabs were distributed to households in the Rugarama sector. Some households also received soil as well as jerry cans and pipes for urine collection.

Figure 1: Map of Rwanda indicating the four districts where UNICEF-Rwanda is implementing a five-year project on water, sanitation and hygiene



Source: KHI Rwanda

2.2 Rwanda's commitment to accelerate progress in sanitation and hygiene

That the Rwanda government understand the importance of sanitation and hygiene in the fight against poverty in Rwanda is reflected in the country's national policy and strategy for water supply and sanitation, including hygiene (WASH) services prepared by the Ministry of Lands, Environment, Water and Mines (MINITERE). This policy is coherent with the National Environmental Health Policy, implying that human and environmental health issues are both supposed to be addressed. Access to improved sanitation is at the centre of the country's ambitious Vision 2020,⁷ which aims to achieve 100% household sanitation and hygiene coverage by 2020. Furthermore, the water and sanitation policy is in line with the country's Economic Development and Poverty Reduction Strategy (EDPRS). One of the goals of EDPRS is to increase the proportion of Rwandans with improved sanitation and hygiene

⁶ A joint programme of the the WHO and the UNDP/World Bank Water and Sanitation Program.

⁷ Result of a consultative process with Rwandans all over the country.

services. The strategy also assigns roles and responsibilities to different stakeholders. For instance, the Ministry of Infrastructure (MININFRA) handles the design of sanitation technology and systems, and the Ministry of Health (MINISANTE) promotes hygiene and behavioural change. Apart from the above mentioned ministries, other national actors, as well as multilateral organizations and NGOs, and districts and sectors, also play key roles in promoting and providing sanitation and hygiene facilities. The roles, responsibilities, interests and influence of these stakeholders are summarized in Table 1 below.

Table 1. Who does what and why in the WASH sector in Rwanda

Actors	Roles/responsibilities	Interests	Influence
MINITERE	Define overall WASH policy Mobilize funds nationally and internationally for the sector Organize activities in the sector and plan WASH projects.	Environmental sustainability Sustainable and equitable provision of WASH services	Very high
MININFRA	Implement investment and labour intensive WASH projects Contribute to policymaking	Development of infrastructure, e.g. technology and design	High
MINISANTE	To promote health and hygiene standards and regulations for WASH To ensure compliance through sanitary inspection.	Proper hygiene and healthy society	High
MINICOFIN	Finance MINITERE Determination of tariffs; Supervises institutional reforms; Harmonizes funds from external sources.	Best practice in financial management	Very high
MINALOC	Ensure good governance at all levels Channels funds for projects	Good governance	Very high
REMA	Set environmental standards and regulations (EIA) Monitor compliance	Environmental sustainability	High
RURA	Ensure that services meet standards	Provision of high quality services	High
Multilateral organizations and NGOs	Support WASH projects especially for the poor Provide technical and advisory support	Sustainability with MDG in focus	Very high
District	Own public WASH infrastructure Mobilize funds at local level Prepare budget Participate in policy making Implement policy	Improved WASH services and livelihoods	High
Sector	Make and implement policy	Good WASH services	Low

Source: Sano 2007

In 2010, the President of Rwanda launched the Hygiene and Sanitation Presidential Initiative (HSPI), which raised the profile of the Community-Based Environmental Health Promotion Programme (CBEHPP) for domestic sanitation. The CBEHPP was launched in 2009 (Jain 2011). Since the programme was launched, about 45,000 community health officers have been trained by officials from the Ministry of Health. Community health clubs (CHC) are also being formed as part of the CBEHPP in villages all over Rwanda to promote sanitation and hygiene at the local level, and more than 80% of the country's 15,000 villages now have such

clubs (IRC 2011). HAMS was also initiated to promote hygiene and sanitation by influencing positive behavioural change in schools.

The WASH policy states that to accelerate sanitation and hygiene coverage, 150,000 toilet facilities at the household level need to be improved, replaced or built on an annual basis. In this arrangement, the government is supposed to promote and facilitate hygiene, while households are responsible for providing resources for the development of facilities. Jain (2011) reports that household access to sanitation facilities has increased faster in rural Rwanda than in many other SSA countries. Rwanda's population grew from 7 million to 11 million people between 1990 and 2010, while the percentage of the Rwandan population using improved sanitation increased from 36% in 1990 to 55% in the same period. This increase in usage mainly occurred in rural areas, i.e. from 34% in 1990 to 56% in 2010 (WHO/UNICEF, 2012). National data shows that 94.2% of households use pit toilets, 3.1% of households use ventilated improved pit (VIP) toilets, 0.2% of households use UDDTs, and 4.5% of households use flush toilets (MININFRA, 2011).

2.3 Laws on sanitation and hygiene in Rwanda

Rwanda's first public hygiene law was passed in 1926. Since then, a number of sanitation and hygiene laws, constitutions and regulations have followed. Table 2 shows a sample of these, as well as some of the decrees that enforce them.

Table 2. Sanitation and hygiene related laws in Rwanda

Law/ constitution/ regulations	Content	Decree	Penalty
Order No. 71/18	Disposal of excreta is prohibited on roads and public places	ERO no 71/106 of 20 July, 1949	Either seven days of labour bondage, or a fine of 200 Rwandan Francs (RWF), or both penalties
Order No. 74/345	All houses, shops, workshops, construction sites or any other establishments shall have clean toilet facilities. Latrines shall be built according to the relevant regulations. Latrines, septic tanks and sewers shall be built after approval by the technical departments of the Public Hygiene Department. Latrines shall be built according to the relevant regulations. Night soil shall be removed and buried or discharged in an appropriate manner as determined by the local territorial authority.	ERO no 700/176 of 14 Sep., 1959	
2003 Rwandan constitution	Article 49: Every citizen has the right to a healthy and satisfying environment. Every person has the duty to protect, safeguard and promote the environment. The State shall protect the environment.		
Organic law No. 04/2005 for environmental protection and conservation	Article 81, Part 1: The dumping of wastes of any kind in streams, rivers, lakes, and surroundings is prohibited. Part 2: prohibits the damage of air and surface or groundwater. Article 83 and 84: The discharge of untreated waste in wetlands is prohibited. Article 84: The disposal of wastes in a way that makes them serve as favourable breeding ground for disease vectors is		Article 102: A fine of RWF 1–5 million or a prison term of six months to two years is given to people who dump waste indiscriminately. Article 107: A fine of 10 thousand to 100 thousand Rwandan francs is given to a person who pours sewage in public or private places that are

	prohibited.	not authorized by competent authority.
2009 Rwanda Building Control Regulations	<p>3.3.2.13: Latrines shall be located on the plot on which the building is to be erected and shall be arranged and maintained to be conveniently accessible to any person employed or housed in the building at all times during the period of employment or residence.</p> <p>3.3.2.14: Latrines shall be located not more than 30 m from any building in which persons are employed or housed.</p> <p>3.3.2.16: A dwelling unit shall be provided with approved latrine facilities in accordance with the requirements of these Regulations. Any owner of a dwelling unit normally employing servants shall provide latrine facilities for the exclusive use of the servants, which shall be in addition to those provided for the occupier of the dwelling unit.</p> <p>3.3.2.17: No building containing more than one dwelling unit shall be erected or occupied without provisions being made for separate latrines for each unit.</p>	

Source: Adapted from Sano 2007, and Jain 2011

2.4 Prescribed guidelines or standards for latrines in Rwanda

The guidelines for latrine technologies in Rwanda recommend four latrine options or systems. These may be constructed and used in different regions of the country depending on factors such as affordability, space, cultural habits, availability of water, availability of skilled labour, and geographic conditions. The options or systems include: simple pit toilets; VIP toilets; flush toilets and eco-toilet/dehydration vault toilets. The norms and standards for proper hygiene and sanitary conditions of toilets are summarized in Table 3. Table 4 presents the prescribed guidelines for pit toilets and UDDTs.

Table 3. Norms and standards for latrines

Characteristics of sanitary toilet	Minimum quality standards for toilet construction	Components of a sanitary toilet
Should not pollute or contaminate soil	Should be sealed – pit and ventilation pipe must be covered	Should have a superstructure made of: four walls and a door; roof (may be constructed with locally available material)
Should not pollute or contaminate groundwater	Should be properly cleaned	Should have an underneath structure consisting of: a pit/tank; a slab/pedestal with a hole; and a lid (may be constructed with locally available material)
Should not pollute or contaminate surface water	Should be well maintained	
Should not act as breeding media for vectors		
Should not require handling of huge amounts of waste and high technology		
Should not produce odour and unpleasant sight		

Source: MININFRA 2011

Table 4. Prescribed guidelines for pit toilets and UDDTs (ecotoilets)

Pit toilet			UDDTs		
Structure and design	Construction material	Management/maintenance	Structure and design	Construction material	Management/maintenance
Pit should be at least 1000L; at least 3m deep; 1m in diameter; walls of pit should be lined if it is to be reused; pit should be 30m from homes and water source, pit can be built upwards using concrete rings or block; pit can also be shallow and unlined - arborloo	Cement, metal sheets, sand, gravel, stones	Toilet must be covered with lid; water and soap for handwashing should be available	Single or double vault Vault must be watertight. Vault should be large enough to allow for airflow. Vent is needed for ventilation and fly control No specification on dimension of vault	Cement, metallic sheets, sand, gravel, ventilation pipe, urine pipe, container for urine collection	Toilet must be covered with lid; water and urine should not get into the vault; wastes should not be dumped in vault; water and soap for handwashing should be available; ash, sand or lime should be added to toilet after every visit; shovel, gloves, and mask should be used for emptying vault

Source: MININFRA 2011

3. METHODOLOGY

3.1 Site selection

Rugarama sector was selected as the case study location in consultation with Kigali Health Institute (KHI), Rwanda. The main rationale for the choice was that it was presented as one of the sectors where productive sanitation activities are well managed and lucrative. For the purposes of comparison, it was necessary for the case study site to have a community with predominantly pit toilets (which is the case in Cyahi cell), and which was located in close proximity to another community with predominantly UDDTs, where human-derived nutrients are applied on farms as fertilizer (Gafumba and Karangara cells). These cells are made up of several villages, (or *imidugudu*). In the Cyahi cell, the Rubeja *umidugudu*, which has more than 144 households, was selected. In the Gafumba cell, households were chosen mainly from the Nyarwondo *umidugudu*, which has about 150 households. Lastly, in the Karangara cell Maya *umidugudu* was selected, which comprises around 173 households. The local government provides public taps in all of these cells. Gafumba has five public taps, Karangara has eight, and Cyahi four taps. There are also five private water connections in Gafumba and three in Karangara. Most of the people in Gafumba and Karangara cells are settlers from different parts of the country, while those in Cyahi cell are mainly indigenous.

3.2 Field research methods

Field research was conducted in July 2011 using the following qualitative research methods: semi-structured interviews; focus group discussions; and direct observation.

Semi-structured interviews were performed with selected experts from the Ministry of Health and Ministry of Infrastructure; sanitary inspectors; community, traditional and religious leaders; school heads; leaders of the productive sanitation cooperative (Dusukure PHAST cooperative); and individuals in the communities. The interviews captured participant's perspectives, experiences, opinions and feelings. At least one person was interviewed from each of the above mentioned groups. Participants were selected on the basis of several criteria, which were whether they: were actively engaged in sanitation programmes or projects, and productive sanitation pilot projects; were well-versed with formal and informal

institutions (laws, policies, regulations, guidelines and norms); worked directly with communities; were in a position of authority; and were available for interviews. A framework used to guide the interviews that consisted of a matrix that captures what is prescribed⁸ and what happens or prevails in terms of sanitation and hygiene practices. This framework was also used for documentation.

Direct observation consisted mainly of several guided tours in the Gafumba, Karangara and Cyahi cells. These tours were led and facilitated by the leaders of the Dusukure PHAST Cooperative. Observations were made of behaviour, interactions, toilet structure and condition, and gardens and farms, among other things.

Through focus group discussions (FGD), we gathered households' perceptions of "shared norms" in the study area (i.e. what is acceptable) and what is actually done (practices that are very likely to differ from what is perceived to be acceptable), as well as other perspectives existing within the communities. Four gender balanced FGDs were conducted – two with people from Gafumba and Karangara cells (where one group consisted only of women, and the other only men) and two with people from Cyahi cell (where one group was made up of only women and the other only men). Each group consisted of eight participants. Selection of participants was facilitated by the leaders of the Dusukure PHAST cooperative. In order to qualify for the FGD, participants had to have access to and use the sanitation options or systems under comparison. Convenience sampling was also partly employed in the selection process. All discussions were held in the local language – *Kinyarwanda*. A local field assistant and an interpreter with a background in environmental health facilitated the discussions and took notes. The same framework matrix used during semi-structured interviews was used to guide the FGDs and also for documentation.

4. RESULTS AND MAIN FINDINGS

4.1 Informal institutions: what prevails

Information on informal institutions was assembled mainly from FGDs with households, some semi-structured interviews, and direct observation.

The significance of the toilet in the Rugarama sector

Participants reported that in Rwandan culture, toilets signify "hygiene", which translates as "isuku" in *Kinyarwanda*. This is similar to what Jain (2011) reports: faeces are called *amazirantoki*, which means "do not touch" or "untouchable". Household, toilet and personal hygiene is considered important. Defecation inside or very close to living space is not allowed. There are specifications regarding the location of the toilet within the compound. For instance, participants in all FGDs reported that toilets should be constructed away from the house and outside the household fence, specifically at the exit of the compound. In addition, toilets must be constructed away from the kitchen, at least if there is enough space within the compound. In the case of shared toilets, the toilet owners are responsible for making cleaning arrangements with other toilet users.

⁸ In terms of design, location, structure, condition, and emptying and maintenance of toilets; health and safety; enforcement of regulations; disposal of sanitary waste; cleansing material; handwashing arrangements; labour safety; management of excreta and application of sanitized excreta in farms; and gender aspects, including menstruation management.

Stated hygiene and sanitation beliefs, norms and practices

Participants in FGDs reported that defecation in and around the house is not allowed, whether in leaves or bags. However, this can be done by people who are very sick and unable to walk. It is also considered important to safely handle and dispose of the faeces of children and the sick. Child faeces is collected with a hoe, spade, or in leaves and disposed of in the toilet. In the same way, the faeces of sick people is collected in a basin and transferred to the toilet. The use of wood ash to clean hands is also practiced after visiting the toilet. Anal cleansing materials used by households in both communities range from old books and newspapers to fresh and soft leaves from plants grown locally, e.g. *Ibidodoki*, which many households cultivate for this purpose. Toilet tissue is used occasionally and exclusively by those that can afford it. Most participants in the FGDs prefer to use the toilet in the early mornings. Regarding menstrual hygiene, most women in the FGDs reported that they use pieces of new cloth. These cloths are either plain white or dyed. The pieces of cloth and napkins are used several times. The cloths are washed and dried away from the sight of children and neighbours. In some cases these are dried indoors. A few use napkins and modern menstrual pads. Pads and old pieces of cloth are either burnt or thrown into the toilet pit.

It was observed that most of the toilets in both communities were in a very poor condition, particularly in the Cyahi Cell. In addition, standards of hygiene in several households were poor. These observations contradict what households reported with respect to the importance of the toilet in terms of household and personal hygiene. Nearly all the households visited had their toilets outside the household fence. Households with toilets either on the fence or close to the house and kitchen complained of lack of space. All households keep at least one animal, and it is common in the communities to find toilets built next to animal pens. All FGD participants reported that they washed their hands after visiting the toilet. However, participants said that use of soap during handwashing is not a common practice. Only one locally made handwashing facility was observed close to a toilet in both communities. Apart from the above-mentioned contradictions, in both communities the stated shared norms and values on sanitation and hygiene matched observed practice.

No informal sanction, such as social exclusion or stigma, was reported for poor sanitation and hygiene behavior and practices.

4.2 Formal institutions: prescribed sanitation guidelines and standards, and prevailing practices

In both communities marked contradictions exist between prevailing practices and formal standards and guidelines on sanitation and hygiene. Generally toilets in both communities do not meet minimum quality standards, or requirements for sanitary toilets in terms of structure, design, condition, maintenance, handwashing arrangements, health and safety, and labour safety.

In Cyahi cell, the majority of toilets are traditional pit toilets of the simplest kind. These are basically shallow pits covered with small wooden logs. When a pit fills up, it is simply covered over and another shallow pit is dug within the compound. There are also a few UDDTs in the Cyahi cell. Most of these toilets, including those with UDDT slabs, are without a roof, door or lid, and such structures do not guarantee privacy or health and safety. During the rainy season, these logs become wet, soft and slippery. FGD participants reported that people, especially children, can slip and fall into toilet pits, especially during the rainy season and during the night. In place of a roof, people use umbrellas, leaves, or whatever is to hand,

to cover themselves when they visit the toilet during rainy periods. Because pits are shallow and do not have lids, excreta is not properly contained, which causes bad odours and attracts flies. In addition, pits quickly fill up with water during the rainy season; when this happens, villagers cover the full pits and dig new ones.

Most of the households in Gafumba and Karangara cells have upgraded their traditional pit toilets with UDDT slabs, but still use them as pit toilets. As was the case for the facilities in the Cyahi cell, several of these toilets lacked roofs, doors or lids. In none of these UDDTs is urine collected separately, and only a few UDDTs owned by dedicated members of the Dusukure PHAST cooperative are properly constructed and used. Nevertheless, there is still a general lack of understanding even among the cooperative members about how the productive sanitation system works. For instance, a member reported that she pours 20 litres of water every two weeks into both the urine and faeces compartments of her UDDT in an effort to contain the smell. Urination in the faeces compartment of UDDTs is common in households where men are in the habit of drinking excessive amounts of alcohol. This tendency is frequent during the season when villagers brew sorghum drinks. Mixing of urine and faeces also occurs when households receive guests, especially children who do not know how to use the toilet in the way it is intended to be used. Also, FGD participants who have toilets close to roads and public places reported that their toilets are misused by passers-by. Wood ash is scarce in households and, therefore, it is not always applied to faeces after every toilet visit, and participants were unaware that sawdust, wood chips and sand can be used in place of wood ash. Since some members and non-members of the cooperative see the positive effects of human-derived nutrients on their crop yield, a good number of them apply excreta that is not fully sanitized on their farms. The use of protective equipment for handling, transporting and applying excreta to farms is not a common practice, and only the leaders of the cooperative and eight other of its members received protective gear from UNICEF-Rwanda, and even these individuals do not regularly use it.

4.3 Major reasons for the contradictions between prevailing practices and prescribed standards

There are a range of reasons for the contradictions observed in both communities and apparent from FGDs. The key cause are likely to be the following: poor prioritization of the toilet by participants; a lack of understanding of prescribed sanitation and hygiene guidelines and standards; challenges in carrying out sanitary inspections in the communities; poor understanding of productive sanitation with respect to participants with UDDTs. These reasons are expanded on below.

Low prioritization of toilets

FGD participants, especially those in Cyahi cell, prefer not to invest a lot of money in constructing a toilet with solid super-structure and rooves; instead, they shift the pit around the compound. They explained that their pits are shallow and fill up quickly, which is understandable because they cannot dig deeper pits. Others, however, have spent money on building their pits upwards with stones and mud bricks. Toilets of this type last for a longer time, and most have superstructures and roofs. When asked to make a priority list, FGD participants did not rate having a proper toilet as among their top four priorities: buying a farm, buying an animal, sending children to school or repairing the house are a few examples of some of the things that participants would prefer to spend money on before improving the conditions of their toilets.

Lack of understanding of prescribed sanitation and hygiene guidelines and standards

FGDs revealed that several participants were not properly familiar with prescribed sanitation guidelines and standards. Although participants were aware of the existence of national standards, they didn't know the exact specifications. In addition, only a few members of the Dusukure PHAST cooperative are aware of how to use UDDTs, and the health and safety guidelines in treating, transporting and applying human excreta in farms. The leaders of the cooperative who received PHAST training from UNICEF-Rwanda have not been very successful in building capacity for productive sanitation in the communities. Those benefits that have accrued so far from productive sanitation activities were observed to be distributed mainly among the cooperative's leaders and only a few of its members. Religious leaders also received productive sanitation training, but take up among the rest of the congregation remains low. Furthermore, not all of the people who received UDDT slabs have joined the Dusukure PHAST cooperative; only 17 out of 80 people that received UDDT slabs apply human-derived nutrients from their toilets to their farms, and of these 17 most are members of the cooperative.

Challenges in carrying out sanitary inspections

All cells receive regular visits from community health officers, who are responsible sensitizing local people about personal and household hygiene. Officers reported that they spend two days in the local cell office and the rest of the working days are spent inspecting conditions in the village (*imidugudu*). The health officers also sensitize women on how to take care of children as well as on the importance of educating girls about menstrual hygiene management. Cell leaders also visit the *imidugudu* on a monthly basis. The community health officer in charge of the Karangara Cell reported that a survey carried out in 86 households in Maya *imidugudu* revealed that only four households have toilets close to the minimum standards, one of which is a UDDT. For UDDTs specifically, FGD participants reported that inspection and technical support is irregular and insufficient.

Local churches in the cells also promote sanitation and hygiene. Clergymen and women from both the protestant and catholic denominations visit households and evaluate general hygiene and sanitation conditions in which their congregations live. In addition, hygiene and sanitation, including menstruation management, are discussed during female church group meetings.

There are fines for poor hygiene, as well as rewards for exemplary hygiene behaviour and conditions. Households without toilets are fined RWF 5,000 (USD 8.3) while those in poor hygiene conditions are fined RWF 2,000 (USD 3.3). The inspection system is tolerant in that in certain cases households – especially those that are very poor – are warned and given time to improve the sanitary conditions before the next inspection. However, this doesn't work for all households, and some frequent culprits either refuse or are unable to pay the fine, which frustrates the efforts of community health officers. Recently, officers introduced rewards to encourage households to improve their toilets and hygiene conditions. Only two households in Gafumba Cell have received rewards of RWF 10,000 (USD 16.5) each for good sanitation and hygiene conditions. Other efforts to incentivize good hygiene and sanitation practice include competitions organized in schools, in which winners are awarded a range of prizes, such as soap and t-shirts.

Poor understanding of productive sanitation

Even though the leaders of Dusukure PHAST cooperative are dynamic and dedicated to promoting productive sanitation, even among the cooperative members there is still only a very limited understanding of the issue, in particular with respect to the use of UDDTs, handling and management of human excreta, and application of human derived nutrients on farms. Furthermore, neither the cooperative or local authorities properly monitored the construction of UDDTs. These factors clearly indicate that information on how productive sanitation works was not transferred effectively to local people, which is likely to be due to both the manner in which it was communicated, and the fact that too little time was spent on the process.

5. CONCLUSIONS

Undoubtedly, having a sanitation and hygiene policy in place is critical to raising the profile of the sanitation and hygiene sector, as the case of Rwanda bears out. However, as this study reveals, policy alone is not adequate, and in Rwanda it remains a challenge to translate policy on sanitation and hygiene into practice. Effective policy should not only be comprehensive and coherent within itself; it must also be converted into practice on the ground. There must be a common understanding of policy at all levels – national, regional, and local – and by all actors, including households, for policy to be legitimate and guide behaviour. We can also conclude that prioritization of toilets, especially at the household level, is central to efforts aimed at increasing the proportion of people using functional toilet facilities, as well as for maintaining acceptable hygiene and sanitation standards.

Unlike in many other countries in sub-Saharan Africa, the government of Rwanda has acknowledged the importance of proper sanitation and hygiene for human and economic development. The government prioritizes the issue and has put in place a strategy and structure to accelerate progress in the sanitation sector. However, the contradictions between policy and practice identified in this study undoubtedly thwart national efforts to improve coverage, maintain proper standards, and speed up progress in the sector. To address these contradictions, it is imperative to integrate policy and practice at all levels, and to harmonize norms and local practices with prescribed guidelines and standards. This requires a range of actions and measures, including: coordination between actors in the sector; effective capacity development; sustained support for and monitoring and maintenance of standards; and effective enforcement, especially at the local level.

It is well reported that household access to sanitation and hygiene facilities has increased in rural Rwanda. Innovative systems like productive sanitation have also recently been introduced in the rural areas to boost sanitation and hygiene coverage as well as crop yield. Certainly, having access to facilities is a positive step up the sanitation ladder. However, if these facilities are to be sustainable, they must be functional and meet the prescribed minimum standards. MININFRA (2011) reports that 94.2% of households use pit toilets and 0.2% of households use UDDTs in Rwanda, but does not state if these toilets are functional. As this study shows, several toilets in the Gafumba, Karangara cells, and especially in Cyahi cell, do not meet prescribed minimum standards. Whether or not this is representative of the rest of rural Rwanda, it clearly indicates that such contradictions exist.

Generally, the toilets in all the three cells, whether pit latrines or UDDTs, do collect and store human excreta. However, health, hygiene, convenience, and safety aspects of the toilets remain unsatisfactory, since most of the facilities are neither properly constructed nor properly used, making them not fully functional.

Despite this, there is encouraging progress in the sanitation and hygiene sector in Rwanda, even though the country's strategy is relatively new and the prescribed guidelines for toilets are even more recent. In order to accelerate progress in the sector in a sustainable way as the government plans, emphasis must be placed on strengthening capacity of players at all levels – especially the local – to conform to the prescribed rules.

Improved understanding of the importance of having properly constructed and well maintained sanitation and hygiene facilities will, undoubtedly, create a demand for such facilities irrespective of the economic hindrances reported by most participants. The right information and timely support must continue to trickle down through all levels, right down to households, which are key actors in efforts to improve sanitation.

The insights presented in this paper are relevant for ongoing initiatives in the sanitation and hygiene sector, and to Rwanda's efforts to maintain access to functional sanitation and hygiene facilities and make meaningful progress towards her ambitious vision of 100% sanitation coverage by the year 2020.

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