

Sanitation and Hygiene in Kenya: Lessons on What Drives Demand for Improved Sanitation

This field note summarizes the findings of an assessment on the impact of sanitation technologies in Kenyan households and the factors that have influenced demand for the type of technologies used presently and in the past. It also seeks lessons for future strategies for achieving sustainable sanitation.



Limited financial resources are reported as the major constraint to the large-scale adoption of sanitation technologies. The study also identified that a lack of awareness about sanitation and hygiene, and how to construct and maintain pit latrines, do hinder sanitation coverage.

Summary

Sanitation and hygiene are fundamental to good health and dignity, and improving sanitation and hygiene practice are household matters. However they are often strongly influenced by community 'trends', and so it is useful to learn about and compare the perceptions of hygiene and sanitation at household, community and 'official' levels.

This field note summarizes the findings of a field assessment on the impact of sanitation technologies in Kenyan households and the factors that have influenced demand for the type of technologies used both presently and in the past. The assessment was conducted by

the Africa region of the Water and Sanitation Program (WSP-AF). Historical influences include decrees by the colonial administration backed up by enforcement of the Public Health Act. Today, the demand drivers are an understanding of the relationship between good health, hygiene and sanitation practices combined with densification which has led to a loss of privacy.

Related issues such as sanitation coverage, operation and maintenance (O&M) and excreta re-use are outlined as are key issues that have constrained the large-scale adoption of the technologies. Limited financial resources are the major constraint but the study also identified that a

lack of awareness about sanitation and hygiene, and how to construct and maintain pit latrines, do hinder sanitation coverage.

An important aspect of this field note is to seek lessons for future strategies for achieving sustainable sanitation. In this regard, progress being made in excreta re-use and EcoSan technologies such as the Skyloo, Arborloo and Fossa Alterna are outlined.

Background and Context

Kenya's economy has been stagnating because of poor management and uneven commitment to reform, with a real GDP growth rate of only 1.5% per annum. The per capita GDP is estimated at US\$301.

Excreta Disposal Practices

The communities selected have different excreta disposal practices some of which are influenced by traditional beliefs. The Digo in Kwale are mainly Muslims and their excreta disposal practice is influenced by availability of water and the belief that people are not supposed to excrete in houses (including pit latrine structures). The Kikuyu community believes that an improved excreta disposal facility enhances one's image in the society. It is also culturally accepted that if one wants to build a house, one starts by building a latrine for use by the builders. Nyeri district therefore enjoys the highest coverage of sanitation facilities in the country. The Masai are a pastoral people moving with their cattle to find new pastures. They do not build toilets, but have been known to use them in the vicinity of watering holes where they temporarily congregate.



Abandoned open air toilet in the Masai area of Kjado.

The GDP composition by sector is agriculture at 26%, industry at 18%, and tourism and other services at 56%.

The population of Kenya is projected to increase dramatically over the next two-and-half decades, doubling by 2025. Currently official figures claim that sanitation coverage is lowest in rural areas. The squalor of informal settlements is more than obvious. There is a pressing need for achieving sustainable and effective sanitation coverage in Kenya.

Public health, dignity and poverty alleviation concerns, which are heightened by the Millennium Development Goals on sanitation, are stimulating practitioners to revise their thinking on how to achieve sustained sanitation improvements for the poor.

Environmentalists are also challenging the sanitation sector to 'think ecologically' to limit the negative impact of traditional solutions, and broaden the options of sanitation technologies to include the re-use of excreta nutrients.

This study was sponsored by WSP-AF and forms part of a series being carried out in a number of countries including Kenya. The purpose was to collate information on interventions and trends that show relative success in improving sanitation and change in hygiene behavior, and how these lessons may



A simple pit latrine built using locally available materials.

inform policy, regulation and strategy formulation.

Study Areas and Findings

Nine areas were selected for study in the field. They represented the range of socio-economic and cultural diversity of Kenya in terms of agricultural potential, demographic distribution and culture, including excreta disposal practices. Areas were also selected where sanitation promotion programs had been active.

Study methods included household surveys, focus group discussions, interviews with key informants and a technical evaluation of different sanitation technologies. A structured questionnaire combining both pre-coded and open-ended questions was prepared, pre-tested and applied by graduate student research assistants.

Separate focus groups were constituted for women, men, youth, elders and key local leaders from each study community. Groups were led using methods drawn from Participatory Hygiene and Sanitation Transformation (PHAST) and Participatory Rural Appraisal (PRA).

Existing Sanitation Technologies

■ The simple pit latrine was introduced in Kenya by the colonial administration and the missionaries more than 60 years ago. The main purpose was to prevent outbreaks of diseases such as cholera and their construction was enforced through the chief's authority.

The pit latrine has been a very successful excreta disposal facility in Kenya with about 73% percent of the population having access to this facility. The locally available materials used in the construction of pit

Income levels do not in general affect latrine ownership. In both male- and female-headed households, the frequency of ownership is remarkably consistent irrespective of income levels, even among the group classified as 'absolute poor'.

latrines include thatch, iron sheets, sackcloth, mud or any other left-over materials.

■ When VIPs were introduced they did not seem to expand far from the project areas. They are barely seen anywhere else except in areas where project assistance provided materials for construction. Most project VIPs were abandoned after filling as they were made of concrete elements that could not be moved or re-used. They were also more expensive than the traditional pit latrines that were always built with locally available materials. As a result the price of a latrine doubles when a household opts for a conventional VIP five meters deep instead of a simple pit latrine of similar depth. This explains why VIP latrines are not more numerous since communities were unable to replicate project VIPs even after initial material assistance.

The conventional VIP, as promoted by externally supported programs, was simply too expensive to be adopted by rural communities.

Coverage

■ The Kenya 1999 population and housing census showed access to sanitation facilities to be 82%. Coverage data from this study is consistent with these findings. However, the Ministry of Health puts the national coverage of



An example of a VIP.

adequate sanitation as below 50% mainly because the Ministry classification does not consider pit latrines (on-site sanitation) in urban areas as adequate.

■ Coverage levels varied from 91% down to 44% in the study areas. According to the 1999 census, nomadic pastoral areas in the North East have access as low as 22%.

■ Some districts registered a decrease in pit latrine coverage and an increase in the use of the bush. These districts lie in flood-prone areas and pit latrines are usually submerged in rainy seasons giving little incentive to build new ones.

■ Income levels do not in general affect latrine ownership. In both male- and female-headed households the frequency of ownership is remarkably consistent irrespective of income levels, even

among the group classified as 'absolute poor'.

■ Access and ownership are lower in female-headed households. The reasons for this are unclear but are presumed to relate to other gender issues such as constraints on property ownership.

■ In the study areas 80% of the households with access to sanitation, own their pit latrines. Of these, 12% were VIPs and the rest were simple pit latrines. Owners of simple pit latrines did not get any technical or financial assistance while 42% of those who own VIPs got some material assistance (that is, subsidy) in the form of floor slabs, vent pipes and a superstructure. However, it is interesting to note that VIP latrine owners in four of the study areas chose this type of latrine even though financial assistance was not available.

Factors that Influence Demand

Demand Drivers

The reasons given by respondents as the main drivers of behavior change, and the percentage of focus groups in which they were mentioned, are as shown in the table on this page.

In summary, focus group discussions highlighted the following items.

In colonial times, households were forced by the colonial administration to dig pit latrines under threat of jail, and the Public Health Act was enforced through the chief's authority (in terms of the Chiefs Act) primarily during disease outbreaks. This was reinforced by missionaries who preached to their congregations on how cleanliness (hygiene) was godly.

In modern times, communities are better educated and are increasingly aware of the relationship between good health, hygiene and sanitation practices. The sub-division and ownership of land have contributed towards increased demand for sanitation facilities because most of the land is now under cultivation and the bush that provided the much-needed privacy is getting less and less.

In addition, education motivated the youth and men to acquire latrines more than the other groups, while prestige was identified by youth and women as

Historical		Present Day	
Chiefs' orders during disease outbreaks	56%	Health and hygiene awareness and education	86%
Enforcement of Public Health Act	36%	Land sub-division, densification and need for privacy	72%
Influence of the missionaries and early settlers	28%	Prevention of diseases	62%
		Project assistance	52%

an important motivator. Finally, women placed more value on

privacy and convenience than did other groups.



A poorly constructed pit latrine.

People mostly learn about sanitation technologies from their neighbors, public health workers, public meetings and community workers.

Factors that Hinder Sanitation Coverage

The main problems that hinder sanitation coverage as cited by focus groups were (in descending order of frequency):

1. Limited financial ability.

The inability of a household to raise sufficient funds to construct sanitation facilities was mentioned in all areas as a hindrance to the construction of better facilities than those currently used. Financial capability was mentioned not merely as a lack of resources but as an opportunity cost amidst other competing needs. A household would find it more useful to dispatch its able members to pursuits that will lead to the acquisition of other basic necessities as opposed to concentrating their resources (money, time and energy) towards sanitation facilities. Filled up pit latrines are left to overflow due to lack of funds to construct new ones.



Even the poorest people have built simple pit latrines.

2. Lack of awareness of sanitation and hygiene.

The study shows that there is a positive relationship between improvements

in education, health and hygiene awareness and the demand for sanitation facilities. Households with members who had a higher

The Poor are Paying for Sanitation

Although all focus groups indicated financial limitations as the main constraint towards achieving coverage, analysis shows that even the absolute poor still manage to afford pit latrines. Excluding the nomadic pastoralists of Kajiado, a breakdown of latrine ownership shows a surprisingly small range between non-poor (92%), poor (84%) and absolute poor categories (77%).

In addition, 62% of those who already own sanitation facilities were willing to pay to improve them further and more than 50% of those households without access are reportedly willing to invest in facilities. This strongly suggests that improvements on coverage and access can be made if the costs are kept low when local materials are used and the technology is right.

level of literacy were most likely to demand and adopt safer methods of excreta disposal than those with low levels of literacy. The higher level of literacy is also associated with a high premium placed on health status, which will lead to a demand for safer sanitation technologies.

3. Lack of knowledge on how to construct and maintain pit latrines within households. This has resulted in poor quality construction, basic design faults, unsafe pits and poor maintenance. There is a general demand for technologies that employ locally and easily available construction materials.

4. Adverse geo-hydrological conditions cause a number of problems.

- a) Weak soil structure leading to collapse of latrines especially during the rainy season
- b) High water table resulting in shallow pit latrines
- c) High basement rock resulting in shallow pits.

5. Flooding in low lying areas. Flooding is a major constraint as latrines fill up and overflow during the rainy season.

Quite often the latrines collapse making it difficult and expensive to rebuild after the rains. In such cases, family members prefer to use the bush.

6. Nomadic pastoralism. This way of life creates little demand for excreta disposal facilities because

people are always moving with their animals in search of new pastures.

7. Cultural factors. Various respondents mentioned cultural factors such as restrictions on sharing sanitary facilities between adults and children, men and women and in-laws, and outsiders in general. However, the low priority accorded to this and the general high level of sanitation coverage indicate that such cultural barriers and myths are held by a minority and are continuing to wane.

Strategies for Hygiene and Sanitation Promotion

People mostly learn about sanitation technologies from their neighbors, public health workers, public meetings and community workers. Most respondents believed that the best channels for the promotion of hygiene and sanitation are public meetings, religious organizations, schools and women groups.

In all areas visited the promotion strategies mentioned were:

- a) Creation of health awareness and training of community leaders
- b) Construction of demonstration facilities
- c) Provision of construction materials
- d) Provision of construction equipment
- e) Enforcement of the Chief's Act and Public Health Act in the event of epidemics.

Excreta Re-use and EcoSan Technologies

At the time of the study, in late 2002, less than 100 EcoSan toilets had been constructed in Kenya but this number has since increased.

Most households surveyed were not aware of EcoSan technologies and the opportunities offered by excreta re-use especially in soil conditioning for improved food production.

However, 70% of the survey respondents reported that they plant foodstuffs such as bananas on filled up pits which are consumed by household members, and 39% of the households said they were willing to use excreta as re-usable manure in their farms.

Twenty out of 50 focus groups interviewed acknowledged they had eaten chickens that fed on human waste.

Furthermore, 39% of household respondents said they would be willing to re-use human waste as manure in their farms and 27% would approve their families consuming fish fed on human waste nutrients.

All groups admitted to a lack of knowledge on excreta re-use.

The study findings show that there is a positive relationship between improvements in education, health and hygiene awareness on the demand for sanitation facilities.

EcoSan Technology

EcoSan technology was first introduced in Kenya in the late nineties and there are now at least six projects in the country run by a number of NGOs. The technologies derive from work done in Zimbabwe, Mozambique, Uganda and Ethiopia. To date, the construction costs of most of these facilities have been subsidized by NGOs who have introduced three types of EcoSan latrines:

- a) **Skyloo**
(raised latrine with urine diversion and separate collection of urine and faeces)
- b) **Arborloo**
(with portable superstructure and no urine diversion, a tree can be planted in the filled pit)
- c) **Fossa Alternata**
(with dual pits and portable superstructure, digested contents of pit not in use can be emptied after a year).

Fossa Alternata and Arborloos work best when quantities of soil, wood ash and leaves are added periodically to produce a balanced compost. Skyloos require some ash to dry the faeces and increase pathogen destruction.



A urine diversion toilet near Mombasa where the jerrycan is used as a urine container.

Skyloos

Several **Skyloos** were built in the Kisumu area of the Lake Victoria region. The technology was seen as an alternative to the use of pit latrines in areas where the water table is high and the community relies on shallow wells for their water needs. The Skyloo latrine is a permanent feature that requires

periodic (6-12 months) emptying of the receptacle and transportation to a composting site. The community has had difficulties adopting the Skyloo type in the pilot area in Kisumu. Some of the reasons cited are cultural problems associated with urine diversion and handling of faeces. Acceptance is slow and some latrines in the pilot area have been abandoned.

Only 8 out of 15 latrines constructed are still in use.

However, some NGOs and a private sector manufacturer have recently reported increased interest and a voluntary uptake of this technology which is unsubsidized. The interest has predominated in areas with geo-hydrological problems.

Fossa Alterna

The **Fossa Alterna** toilet has been well received in two pilot areas.

At least 15 latrines are being used in schools and public places such as fish landing sites.

This type does not divert urine and no one needs to handle the faeces. The maintenance is simple. One needs only to spread wood ash and dry soil



An EcoSan workshop participant demonstrating the squatting part of the urine diversion toilet.



Fabrication of a concrete slab for a Fossa Alterna.

on top of the excreta every time one uses the latrine. The costs are also less than the cost of ordinary pit latrines.

A demonstration latrine constructed in a primary school has attracted the interest of parents who have asked for the design so they can construct one in their homesteads.

Arborloo

One project to introduce the **Arborloo** latrine has been received with enthusiasm.

The initial three demonstration latrines have been replicated to 57 within the last year. The health and agricultural benefits are clear to the community. Respondents' reasons behind

The great majority of households are not aware of EcoSan technologies, although the potential benefits in agriculture and hygiene are well understood by the communities that are using them.

the adoption of the Arborloo latrine include it being affordable and easy to replicate. It uses locally available materials, is easy to construct and move (even for women), and does not need a deep pit which is helpful in rocky conditions. Fruit trees can be grown on abandoned pit sites.

In addition, as Arborloo latrines are shallow, there is less likelihood of ground water contamination or collapse during the rainy season.

Lessons Learned

(1) Historically laws such as the enforcement of the Public Health Act especially during epidemics resulted in a significant demand for latrines.

The main current motivation to build latrines is increased health and hygiene



An example of an Arborloo.

Agricultural Benefits of Ecological Sanitation

Nutrients

The recycling of one person's faecal and urine nutrients can provide up to 85% of the nutrient requirements to grow 250 kilograms of cereals.

Excreta Re-use

Excreta is re-used by applying as soil conditioner on the farm. Fruit trees such as bananas, avocados, papayas, mangoes can be grown on abandoned pit sites.

Urine Re-use

The fertilising effect of urine is similar to that of a nitrogen-rich chemical fertiliser. This means that urine is best utilized to fertilise crops and vegetables which thrive on nitrogen.

awareness, and education about disease.

Other factors include densification leading to loss of privacy, and the occasional availability of project assistance.

(2) Most households that own latrines were not provided with any external assistance. Households already spend comparatively large sums of money on sanitation facilities. Households would prefer sanitation technologies that are:

- a. Affordable
- b. Inexpensive to maintain
- c. Clean and hygienic
- d. Use locally available materials
- e. Easy to replicate
- f. Offer safety, privacy, convenience.

(3) Rural sanitation is a matter decided by the household. Because of cultural norms and convenience, people do not like sharing latrines.

(4) The majority of households have had little or no hygiene and sanitation education. This may explain why there is poor use of latrines, and why many latrines are not safe, do not provide adequate privacy and are unhygienic.

(5) The main problems that hinder sanitation coverage as cited by focus groups were:

- a. Limited financial ability
- b. Lack of sanitation and hygiene awareness
- c. Lack of knowledge on how to build latrines
- d. Adverse geo-hydrological conditions
- e. Flooding in low-lying areas
- f. Nomadic pastoralism
- g. Cultural barriers, which still exist, but on a limited scale.

(6) Although all focus groups indicated financial ability as



This household in Kusa, Kenya has used excreta as manure to grow this tree.

the main constraint towards achieving coverage, analysis and observation show that even the poorest can still afford pit latrines. More than 50% of those not covered were also willing to pay for improvements.

(7) The very great majority of households are not aware of EcoSan technologies, although the potential benefits in agriculture and hygiene are well understood by the households that are using them. The limited experience from small scale EcoSan pilot projects reveals:



A community self-help group constructing a urinal at a fish landing site at Lake Victoria, Kenya.

- a. Within EcoSan technologies a clear preference by rural communities for those without diversion (Arborloo and Fossa Alterna) rather than technologies requiring the diversion of urine (Skyloo);
- b. Greater demand for EcoSan technologies in conditions of rocky soils and a high water table.

(8) The study shows that there is a positive relationship between improvements in education, health and hygiene awareness on the demand for sanitation facilities.

(9) Lastly, strategies for promotion of hygiene and sanitation awareness should target self-help groups, women groups, and religious and community leaders.

ABOUT THE SERIES

WSP Field Notes describe and analyze projects and activities in water and sanitation that provide lessons for sector leaders, administrators, and individuals tackling the water and sanitation challenges in urban and rural areas. The criteria for selection of stories included in this series are large-scale impact, demonstrable sustainability, good cost recovery, replicable conditions, and leadership.

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