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**WATER, SANITATION AND HYGIENE:
SUSTAINABLE DEVELOPMENT AND MULTISECTORAL APPROACHES**

**Norms, attitudes and gender perspectives
in ecological sanitation**

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In Kenya, the urban poor are residing in the Peri urban areas of Nakuru Municipality with inadequate sanitation facilities. This study investigated attitudes towards urine diverting toilets to popularize their use as viable alternative sanitation. Face to face interviews among 231 household respondents using a semi structured questionnaire, field observations, focused group discussions and key informant interviews were performed. Most of the respondents reported that the ecosan toilets are a viable option due to congested housing pattern, desire to own a toilet (for those who never had a toilet before), geo-hydrological conditions, improved privacy, and convenience among other factors. Most respondents preferred squatting type of urine diverting toilet, and are willing to reuse sanitized urine and fecal matter. Among the challenges noted include forgetfulness by some people to spray ash after defecating, misplaced water entering the toilet vault during cleaning and confusion in using the two holes. The provision for squat hole covers; modification of design, commitment and household change of behaviors are fundamental for encouraging more adoption and replication of the toilets.

The study recommends more sanitation is dignity awareness campaigns through social marketing of Urine diverting toilets to salvage available water for improved livelihoods.

Introduction

In 25 years time, the world's population is expected to reach 8 billion, with 5 billion people living in the urban setting. It is estimated that more than half of the 8 billion people will face water shortage and 40 percent of the urban people might live in slums (UN-Habitat, 2003; cited by Winblad and Simpson-Hebert, 2004). Already, more than 2.6 billion (2 out of 5 people) which represents 42 percent of the worlds population, do not have access to adequate sanitation (WHO/UNICEF, 2005). . The rest of humanity relies on conventional approaches to sanitation, which fall into either water borne systems or pit latrines which are poor technologies for lesser developed countries (Kalbermalten,1980) .Both 'flush and discharge' and 'drop and store' technologies were built on the premise that the nutrients we excrete have little value and waste is suitable for disposal. Consequently, the environment is polluted, nutrients are lost, and a wide array of health problems result (Esrey 2000 cited by Esrey and Andersson, 2001).In the developing countries, 80 percent of all the diseases and 25 percent of all the deaths are caused by polluted water (AuroAnnam, 2004; cited by Jonah, 2007).

Ecological sanitation represents a shift in the way people think and act upon human excreta (Esrey 1998, cited by Esrey and Andersson).Ecological sanitation refers to technologies and practices in which human excreta is collected and processed in a manner such that; it does no pollute water; human excreta is processed to a point that it is safe for human handling; and the materials can be utilized in ways that take advantage of its nutrient properties (Hannan, EcoSanRes,2002).Ecological sanitation is not a singular technology, but "an approach which takes economic, ecologic, and social parameters into account by promoting new sanitation principles and concepts"(Mullegger,2004).

Although there is a universal consensus that body wastes are sordid, our elimination behaviour and our feelings about it are all learned from our experiences, and evolve and change overtime (Kira,1995; cited by

Warner, 2000). As a result, there is no absolute right or wrong behaviour or attitude except within a cultural context (Warner, 2000). Therefore, the understanding of social issues is paramount if one tends to introduce an alternative sanitation system. Psychology, religion and gender are some of the cultural influences that affect the acceptance (or rejection) of an alternative sanitation system. Ecological sanitation notes that when people see for themselves how a well managed system works, most of their reservations about handling human waste disappear (Winblad, 1998).

With the exception of toilet training, the core of psychological literature is limited primarily to attitudes about human waste. Technically speaking, "attitude" includes three elements of behaviour; cognition, perception and tendency to act. Prof. Templer notes that "the subject is an important aspect to human existence and is a taboo as sex was in the time of Freud and Kinsey" (Adams Templer 1998; cited by Warner, 2000). McCarthy and Shrum, (1994; cited by Warner, 2000) found that Personal values about recycling solid wastes did not have a direct relationship with recycling behaviour. Values did however influence attitude; and attitude about the inconveniences of recycling influenced recycling behaviour. Experts in Gender issues are primarily a concern when toilet facilities are multi-family or public. World wide, the majority of toilet users are women (Warner, 2000). Greed (1995; cited by Warner, 2000) notes that women generally have fewer facilities than men, and the lack of provision particularly affects women because they are more likely to be the ones out in public places in the daytime (either shopping, travelling on public transport (for essential food gathering) or making care related trips).

This paper investigated attitude towards urine diverting toilets in some of the Peri urban areas of Nakuru Municipality with the aim of finding out strategies to improve on awareness of ecological sanitation as well as popularize their use as an alternative sanitation. This, it is hoped that it will encourage further dialogue on suitable sanitation options in different cultural context and also to gain insight and knowledge about how people perceive and understand Ecosan's urine diverting toilets arrangements and recirculation of nutrients.

Sanitation, water and gender

The gender problem stems from several causes; but a principle explanation is that the decision making regarding toilet provision has been dominated by men (Greed 1994, Kira 1995; cited by Warner, 2000). In households with more than one person, it is usually the task of woman to clean the bathroom and/ or toilet (Drangert, EcoSanRes, 2004). Given women's overall prime responsibility for the health and well being of families in many areas, it could also be assumed that women would support ecological sanitation on the basis of the health gains (Hannan, EcoSanRes, 2002). To understand better the importance of gender perspective and the chance it is given at household level, a study on household improvement priority in relation to gender was carried out.

From the study, it was found that women have sanitation (46%) and water supply (61%) as their priorities while their men counterparts have shelter (34%) and water supply (16%) as their priorities. It was reported that, although women value better sanitation, it has not been forthcoming due to the role men hold as decision makers. Most respondents said that it is the role of women to fetch water for the household and also keep the toilet clean and usable for hygiene purposes. Water is essential in a family for carrying out household chores which are gender roles given to women in an African culture. It was reported that cleaning the toilet is a woman's role hence water supply needed to be a priority for women. "A man is only consulted to fetch water from a distance when the woman is sick" one of the respondent reported.

It was also found that women assist children, the aged and the sick in their hygiene and sanitation needs. Women also take the main responsibility for socializing children in to the use of latrines and for providing hygiene education to them. Women respondents said that Ecosan toilet is better than pit latrine since there is no worry of a child falling in the pit latrine.

Given women overall prime responsibility for the health and well being of families as reported by many respondents, it could be assumed that women would support ecological sanitation on the basis of health gains. Women's support would also be critical because of the need to pour ashes into the toilet after use to dry out the faeces, increase Ph level and contribute to elimination of pathogens. Since women have the responsibility for tending the cooking fires, their involvement could be needed to ensure a supply of ashes to be used in the latrines. 98% of the women respondents reported that they use fire wood for cooking in their homesteads, and therefore ash is available to be used in the urine diverting toilets for drying faeces.

It was also reported that men do the digging of pits and construction of the latrine structure and most of men landlords or households heads who live in their own plots said that they would support Ecosan system to save on costs of replacing a filled up latrine and space.

Gender was seen to influence the selection of a toilet system. From the study carried out, majority people (62%) preferred the squatting type of toilet most of them (83%) being women. They reported that, sitting type of toilet poses a great risk to women and may lead to contracting sexually transmitted diseases and other infections. This implication appears to weigh heavier on women than men, simply because men do not sit down in shared toilets as frequently as women do.

Smell and appearance of human excreta are some of the aesthetic aspects which play a role in acceptance as well as rejection of a sanitation system. There seems to be a general societal norm that touching or handling human excreta should be avoided. "Ethnic groups like the Teso in Kenya are traditionally sought after to carry out sanitation jobs (Drangert, EcoSanRes, 2004)". One of the respondents' attitudes of such occupations in Nakuru Municipality is that "it is greatly appreciated as an income generating activity".

Smell is one of the perceptions of human faeces and urine which differ from one person to another. There is a common view that smell from faeces is more pungent than that of urine. However, both faeces and urine smell. One respondent stresses that urine can have a very strong smell, but not as pungent as faeces.

It was found that majority of respondents(63%) use pit latrines in their own plots or rented houses; while 37% use pour flush with leaching pit, water closet connected to seer or septic tank. 85% of those with pit latrine said that their toilets smell leading to flies. One of the respondents reported that, "*sending the flies is the first business when one gets into the toilet.*" Those with other types of toilets like (WC with septic or connected to sewer and pour flush with leaching pit also reported that their toilets smell like any other toilet if there is no water. The measures used to reduce smell and flies ranged from installation of ventilation pipes to putting ash, pouring disinfectant, cleaning with water or soapy water mostly for laundry; using and throwing dry cells inside a pit latrine. Other sanitation type represented an area with no toilet facility at all and the only option is open defecation in a bush or flying toilets.

The respondents were also asked the choice of toilet they would choose given the pit latrine, flush toilets and Ecosan toilets. Those who choose pit latrines said that it is easy to manage the toilet and does not require water; the flush toilet was preferred since it is decent in a house, while those who preferred urine diverting toilets said that the toilet does not smell, no water is required and does not fill up.

There is a connection between the appearance of faecal matter and health according to the respondents'. They reported that it is possible to use the appearance of faeces as an indicator of a person's health status: "*people who are suspicious of being ill will check or if they are ill already will want to check what has come out. Mothers in particular like to check the faeces of their children between 0-3 years to determine their health status. Another respondent expands on the issue: Yes this has been a traditional way of diagnosing the disease and treatment.*" It was also noted that most people do not want to see their faeces and the absence of faeces in the toilet indicates high hygiene standards or general cleanliness and good environment. In all the study areas of Nakuru Municipality, people do not want to see their faeces and they try to hind them by the toilet design: in fact they should be flushed away or buried underground. This view presents a design challenge for urine diverting toilets.

Some respondents said that their culture does not allow collection of another person's faeces and consumption of crops grown from faeces (manure) and urine (fertilizer) will be associated with witchcraft.

The respondents reported that babies' faeces are considered less offensive than adult faeces. There is a more relaxed view of child faeces: "the fact is that culture does not have any negative views about babies shit. It is viewed as clean and of no problem, so water form nappies could as well be poured into the garden or toilet".

Thoughts concerning urine diverting toilets

In 25 years time, the world's population is expected to reach 8 billion, with 5 billion people living in the urban setting. It is estimated that more than half of the 8 billion people will face water shortage and 40 percent of the urban people might live in slums (UN-Habitat, 2003; cited by Winblad and Simpson-Hebert, 2004). Therefore, urine diverting toilets being the viable option for sanitation beyond water crisis, willingness to adopt the option and sustain was seen to influence its promotion in Nakuru Municipality.

From the study, 70% of the respondents said that they would be willing to adopt and use the urine diverting toilet, 15% said they would not be willing to adopt and use the urine diverting toilet, while another 15% were no decided. Those who were willing to use the urine diverting toilet did not have sanitation at all or would be forced by physical factors like lack of space; poor loose soils or rocky ground. Those who were not willing to use the urine diverting toilets said that unless the toilet is designed such that when it fills up, it is abandoned and another build on the abandoned pit latrines.

Operation and maintenance of the Ecosan was the most asked question by the respondents. Asked whether they would use the Ecosan toilet if they were responsible for maintenance, 62% said they would use while 38% said they would not use if they are responsible for maintenance. It was reported removing the filled up bucket from the chamber was the main challenge and many would not be willing to handle human wastes due to cultural orientations.

Asked whether they think that their community would accept the urine diverting toilets, 72% said yes, 15% said no while 13% were not sure. It was noted that it is easy for a homogeneous society to change their belief than an individual in a heterogeneous society. One respondent said that in the Nyanza Province, the Ecosan concept was adopted despite the fact that there are beliefs and folktale associated with human wastes.

Willingness to consume crops grown using faeces and urine as manure and fertilizer was also seen to influence the acceptance of urine diverting toilets. 67% of the respondents said that they would be willing to eat crops grown from sanitized urine and faeces if they are grown by someone else and not themselves. 23% said that they would not be willing to consume crops grown from the human waste as one respondent said; "since when did a person consume crops grown from their own faeces and urine", "this is being so traditional and our culture must be embraced".

Observation was made from one of the already piloted urine diverting toilet in a church and nursery school which serves 25 pupils daily and 150 people on a Sunday. Information was collected using 20 interview schedules and own observation, 98% do not confuse using the two holes, 30% forget pouring ash after defecating, 50% remember to wash hands after using the toilet and majority admitted that urine diverting toilet do not smell like the pit latrine and is easy and comfortable to use. Monitoring of the urine diverting toilet is ongoing to assess people's attitudes for replication.

Conclusions and recommendations

- Ecological sanitation should be developed within a framework that links poverty reduction, human rights and democratic development, gender equality and maintenance of the natural resource base. The framework must be people centred, recognizing the poor-women and men-as actors and change agents rather than victims. The contributions, needs, priorities of all stakeholders, women as well as men, should be taken into account.
- In particular, there is need to give greater attention to the gender perspective in management and governance issues linked to ecological sanitation. Ecological sanitation approaches can only be empowering if both men and women have the possibility to influence the direction of, participate actively in the implementation of, and benefit from, these approaches.
- Long term monitoring of the existing pilots as there is need for more real life performance data. Anything will work as long as there are enough academics and researchers involved, but what happens when the latrine owners are left to themselves? Replication, local adaptation and scaling up of the pilots may remain limited.

Keywords

Peri urban, urine diverting toilets, sanitized urine and faecal matter, norms and attitudes

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