

**34th WEDC International Conference, Addis Ababa, Ethiopia, 2009**

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

**Challenges of sustainable financing of sanitation  
in Nakuru Municipality, Kenya**

*K. O. Ojwando & Dr. B. M. Mutua, Kenya*

REVIEWED PAPER 295

---

*Adequate sanitation is of great importance in addressing public health and plays an important role with respect to poverty alleviation. A large proportion of population in Nakuru is not served with adequate sanitation facilities. Worldwide experiences on financing of sanitation are widely scattered, and influenced by very different local circumstances. Little, if any, real linkage and up-scaling has taken place, to draw conclusions that would fit all circumstances. A study was conducted in Nakuru municipality using structured questionnaires. Results from the data analysis indicated that majority of the households interviewed had low monthly incomes ranging between Kshs. 5000-10000. Sanitation therefore was not a priority with this meager income. The finding indicated that the only way these residents were willing to contribute to sanitation would be in kind labour, 44%. Majority of Nakuru residents, 65% admitted that they don't pay for garbage collection services, reason being that of poverty and the notion that this is the responsibility of the municipal council. On household improvement priority, many respondents, 35% would prefer to have water in their residence followed closely with sanitation. They argue that with water availability, sanitation is guaranteed. Potential financial constraints were identified as unwillingness and inability to pay due to poverty, lack of political will and poor governance and low priority for sanitation in public sector spending due to competing interest with other sectors such as health and education.*

---

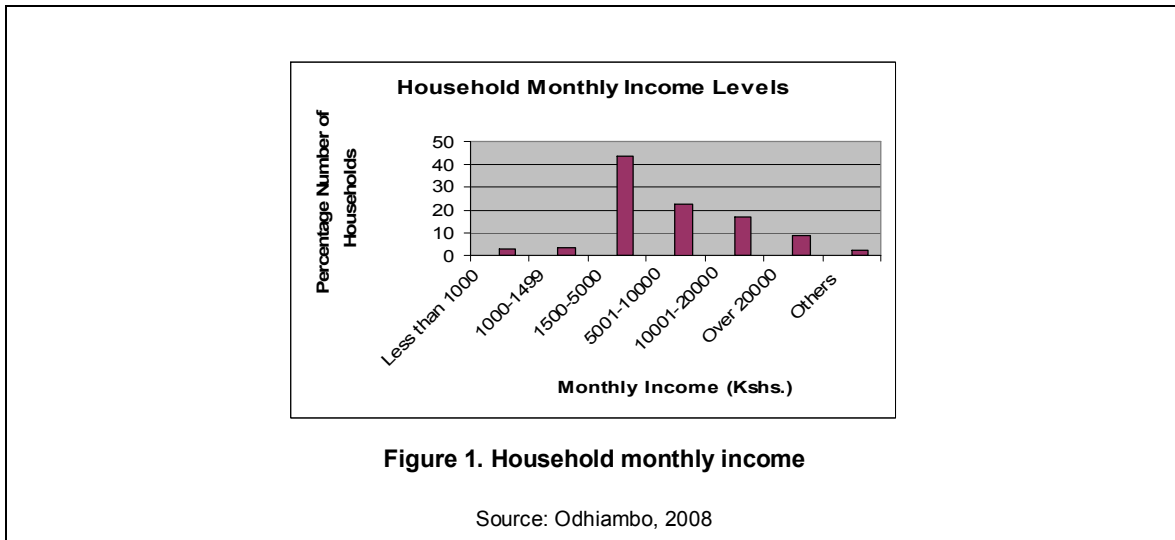
## **Introduction**

Nakuru is the fourth largest town in Kenya located 160Km North-West of the capital city Nairobi. Nakuru's population has been growing rapidly and is currently estimated to be above 500,000 persons (MCN, 1999). This rapid growth has exerted strain on existing water and sanitation facilities. Due to the high costs of conventional sewerage system, the municipality has not been able to expand the network to match the rate of population growth. It is also not able to meet its daily water demand and the sewer network serves only 40% of the population. The alternative methods used in the unsewered areas lead to environmental and sanitary challenges. The majority of the people even the decision makers have no clear knowledge about the cost and the compatibility of each sanitation options. This knowledge gap makes a great obstacle for developing countries to achieve the millennium development goals of halving the population with access to basic sanitation by 2015

## **Sanitation challenges**

Conventional sanitation has been and is still practiced in most residential areas in Nakuru. The use of pit latrines is limited to low-income, high density settlements while other options such as septic tanks are common in middle and high income settlements. These pose high pollution risk to underground water sources, which contributes to 70% of the town's water supply.

A study was conducted in Nakuru on the above topic and the findings were majority of residents earn a monthly income of between Kshs. 1500 to 5000 (figure 1) the residents are thus constrained financially such that issues of sanitation are never a priority.



From the study however, these residents were found to be conscious of the need to improve their sanitation and when pressed on how they were willing to contribute to the improvement of sanitation, majority (44%) were willing to contribute in kind labour. This was prompted by the high poverty levels in these settlements. .

Nakuru town produces approximately 200 tonnes of solid waste per day, 60% is collected while the remaining 40% is uncollected and indiscriminately disposed all over the town.

Although refuse collection is the responsibility of Nakuru Municipal Council, the private sector has increasingly taken up initiatives to complement efforts by the council.

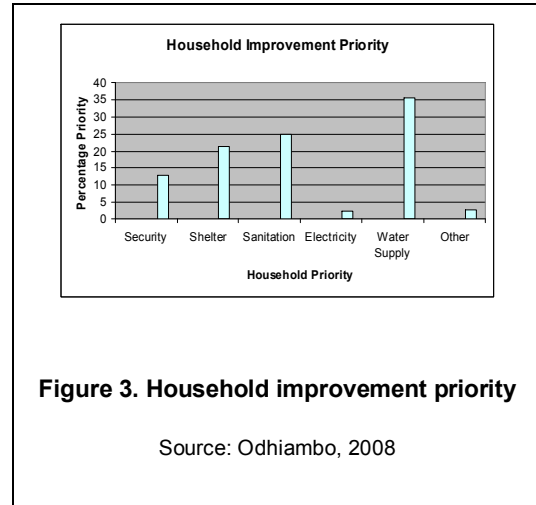
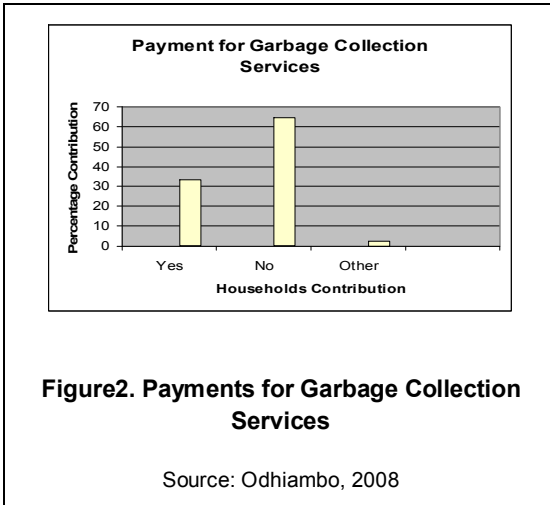
It was realized from the study that most households do not honor the contract. They are not willing to pay for the services rendered. In fact an overwhelming 65% (see figure 2) of the respondents admitted that they don't pay for garbage collection services reasons being poverty thus environmental cleanliness not a priority and the belief that garbage collection is the responsibility of municipal council.

Water supply was identified by majority of the residents 35% as the main household improvement priority, Figure 3.

### Potential financial constraints

From the study, the following constraints to financing of on-site sanitation were identified. These include lack of willingness and inability to pay for sanitation services due to poverty. Majority of the residents especially from the low income residential estates do not regard sanitation as a priority.

Lack of political will from those charged with the responsibility of making decisions on issues to do with sanitation has also contributed to the problems. Sanitation is considered secondary by most decision makers from national to local (council) levels (Mwangi, 2002)



### Conclusions and recommendations

In Nakuru Municipality and other developing nations, the end-of-pipe options are mostly doomed to failure due to a lack of the infrastructure, huge investment costs of sewerage as well as of operation and maintenance of wastewater treatment plants. In most cases “flush and discharge” systems in developing countries do not work properly due to a lack of waste water treatment.

Therefore, the alternative approach such as ecological sanitation or low-cost sanitation systems should become a feasible option.

### Ecological sanitation

Resource-oriented or ecological sanitation systems are an approach to avoid the disadvantages of conventional wastewater systems which are based on water as transport medium for collection and transport of wastewater via a sewer system. A sanitation system that provides ecological sanitation is a cycle of a sustainable, closed loop system, which closes the gap between sanitation and agriculture.

### Cost of ecological sanitation

The introduction of ecosan system in Nakuru is bound to lower the total costs of conventional urban sanitation. Sewers, treatment plants and sludge disposal arrangements will cost several times as much as an ecosan system (Mastewal, 2008). This is particularly important for developing countries, where public institutions face stringent financial limits. Ecosan systems require much less investment as they need neither water for flushing nor pipelines for the transport of sewage, nor treatment plants and arrangements for the disposal of sludge (Esrey, et al., 2001).

When ever a sanitation scheme is planned and technologies are chosen, financial implications always play a crucial role. Although calculating construction costs may be fairly straight forward, there is a considerable difficulty in generating exact figures on running costs for a typical planning period of 20-30 years. One should keep in mind that variations in local conditions (topography, climate, socioeconomic status etc.) can influence costs significantly (WHO-UNICEF, 2006).

Ecosan technology is more cost effective than other sanitation technologies. For instance, constructing a Urine diversion dehydrating (UDD) toilet will cost between Kshs. 20000 to 25000 at present and Urine diversion waterless toilet and squatting plate cost between Kshs. 1500 to 4000 (Odhiambo, 2008).

### Acknowledgement

The work is carried out within the project ROSA (*Resource-Oriented Sanitation concepts for peri-urban areas in Africa*; Contract No. 037025-GOCE; duration: 1.10.2006 – 31.3.2010), a Specific Target REsearch Project (STREP) funded within the EU 6th Framework Programme, Sub-priority "Global Change and Ecosystems". The ROSA team is grateful for the support.

**Keywords**

Adequate sanitation; Sustainable financing; poverty; financial constraints

---

**Reference**

- Esrey S, Andersson I, Hillers A, Sawyer R. (2001). Closing the loop Ecological sanitation for food security. Stockholm (Sweden), SIDA
- MCN, Republic of Kenya, ABOS-BADC, UNCHS (1999). Strategic Structure Plan: Action Plan for Sustainable Development. Vol. II.
- Morgan (2004), *an Ecological Approach to Sanitation in Africa – A Compilation of Experience*
- The Munch, E. V. (2008), Introduction to Ecological Sanitation lecture notes., edited, UNESCO-IHE Institute of Water Education, Delft , Netherlands.
- Odhiambo, K. O. (2008). Challenges facing management of water and sanitation projects, a case study of ROSA Project in Nakuru Municipality. Diploma Thesis. Kenya Institute of Management, Nakuru, Kenya.
- Mastewal, S. S. (2008). A costing tool for non-sewerage based sanitation technologies in peri-urban areas (Case study of Arbaminch, Ethiopia). MSc. Thesis WaterMill Project Delft, the Netherlands.
- Mwangi, S. W. (2002). Challenges of Urban Environmental Governance: Participation and Partnerships in Nakuru Municipality, Kenya.
- UN (The United Nations).2000. UN Millennium Development Goals (MDG; New York (USA), United Nations; <http://www.un.org/millenniumgoals/>. [Accessed: July.2008]
- WHO-UNICEF (2006), *Meeting the MDG drinking water and sanitation target: the urban and rural challenge of the decade*, WHO press, Geneva, Switzerland.
- 

**Contact details**

Ojwando K. O.  
C/o P.O.Box 1108, Nakuru, Kenya  
Tel: +254-0721-819235  
Email: [ojwando2000@yahoo.com](mailto:ojwando2000@yahoo.com)

Mutua B. M.  
P.O. Box 536, Njoro, Kenya  
Tel: +254-0735-968699  
Email: [bmmutua@yahoo.com](mailto:bmmutua@yahoo.com)

---