

<b>Title</b>	<b>Introducing a closed-loop option for management of human waste in Kampala, Uganda</b>
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## **INTRODUCTION**

This paper will present the Project for Promoting Ecological Sanitation in Kampala, and the headway it has made in systematic piloting of Ecological Sanitation not only as a sanitation option but in support of sustainable urban agriculture. It will also make comparisons with other projects in Kampala with similar long-term objectives but differing approaches.

### **INTRODUCTION TO SANITATION IN KAMPALA**

Kampala is growing at a fast rate of 4.9%(night rate), with a population of 1.2 millions at night and about 2.5 millions during the day. About 21% of Kampala is slum area housing 40% of the city population. Much of this area is located in low lying areas.

Sanitation services are inadequate. Only 6,4% of the population is served by sewers (Kampala Sanitation Master Plan - KSMP, 2004). While statistics indicate that about 66% of the population use pit latrine as method of excreta disposal, functional latrine coverage in many areas is below 50%. Many households are sharing toilet facilities, that is, 65%; while 30% have inadequate toilets that is, extremely rudimentary dilapidated or full and over flowing. Emptying these latrines become difficult since access is often not possible or owners cannot afford the cost of vacuum tankers.

The city is located on hills with valleys drained by streams and swamps. Most of the low – income settlements are located in these high water table areas. In these areas drainage is poorly developed and maintained and many of them experience floods. In these areas of high ground water table toilets are let in to the drainage channels especially during the rainy season.

About 50% of solid waste is properly handled either locally or as part of any systematic collection system. Treatment of sewage and septic tank sludge is inadequate.

This “sanitation gap” has resulted into prevalence of malaria and diarrhea diseases (43% of cases reporting to health Centres in the city) in Kampala. Many times there are epidemic out breaks of cholera and other sanitation related diseases

Major expansion of the sewer network is not deemed feasible due to high costs. Among the reasons for the low coverage of on-site sanitation are said to be poverty, lack of awareness, lack of space, and lack of appropriate technology for areas with high water table.

Kampala City Council (KCC) and the National Water and Sewerage Corporation (NWSC) are responsible for the on site- and sewerage sanitation respectively.

### **PILOT PROJECT FOR PROMOTING ECOLOGICAL SANITATION IN KAMPALA**

Since 2002, KCC implements the 3-year “Kampala Ecological Sanitation Project”, with a budget of 1,1 million USD (by grant from the Swedish International Development Cooperation Agency - Sida). Technical Assistance is also provided.

At an overall level, the Project strives to contribute “To improve the standards of the disadvantaged people living in poorly sanitized areas of Kampala”. The specific objectives are:

- Develop and demonstrate appropriate systems of ecological sanitation for poorly sanitised areas of Kampala
- Prepare for large-scale implementation of these ecological sanitation systems
- Define and strengthen the institutional framework for the sanitation sector under jurisdiction of KCC

The first set of EcoSan system components for testing was developed by KCC based on existing

experiences from within Uganda and elsewhere, with support from EcoSanRes network members, CSIR and others. The project is implementing this first set of field based development activities, involving the users in an active way as much as possible, studying how the ecosan system in peri – urban Kampala will be. Recommendations and refinements will be made and activities rolled out to cover other areas of the city.

This project is implemented using a multi sector approach. The staff are KCC staff but working part-time on the project. This was intended for quick integration of results in KCC's working structures. The project has four development units of;

- Technical Design unit, working on developing and testing minimum of three alternative dry toilet designs suitable for poorly sanitised areas of Kampala
- Promotion unit, working on Promoting, awareness raising, identifying gaps in Ecological Sanitation and associated system approaches and bridging the gaps identified
- Health unit, working on investing and ensuring safety of the ecosan system from a human health point of view.
- Agriculture unit working on developing and operationalising a model for popular use of urine and decomposed faecal material in farming.

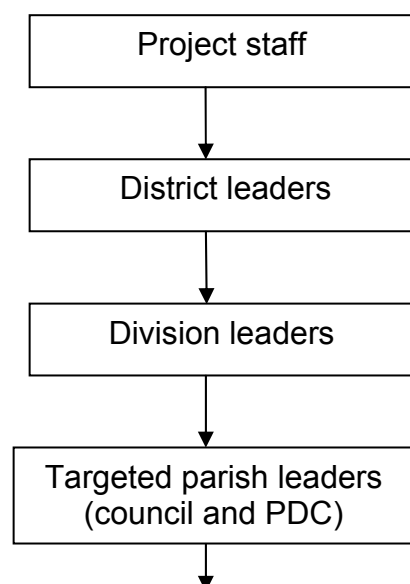
The project has a management unit responsible for day to day running of the project, training, capacity building and putting together all the components of the ecosan system for peri - urban Kampala.

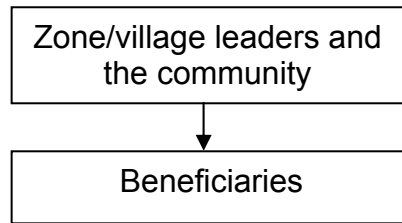
Each of this unit is headed by a coordinator helped by an assistant. Each is supported by six unit members who give advice and support regularly but not on full time basis. It is also supported by international Advisors who give advice incorporating the international experience.

## **INTRODUCTION OF THE ECOSAN SYSTEM IN KAMPALA**

The Project targets user communities whose present on-site sanitation systems do not perform well. Within this context, it has limited itself to dealing with the human urine and faeces waste flows only, and to promoting the dry (urine-diverting) toilet. The Project thus does not foresee to develop comprehensive solutions for the City-level to challenge such as water-borne solutions for the richer strata. Still, it has already, through advocacy, had an important impact on the “Kampala Sanitation Master Plan”, which was recently prepared under NWSC leadership. In this plan, Ecological Sanitation is considered a serious alternative for many Kampala communities over the next 30 years.

The project while targets low income earners, the ecosan concept has been introduced in a systematic way following the local government structure in the City. The trainings were organized as follows:





The District and Division leaders training included political, technical and NGOs operating in slums especially in areas of sanitation. Training for targeted parishes include the parish council and the Parish Development Committees. Zone training was organised for neighbourhood leaders and the neighbourhood residents. Beneficiaries went through a series of training that is, general training on the concept, designs, operation and maintenance of a dry toilet. From initial contacts in the target communities as well as at other levels many showed interest in the toilet design, as well as in the re-use concept. The key areas of concern from these trainings were;

- The cost of the toilet
- The establishment of Demo toilets to have hands on experience
  - The usability of the toilet by Moslems
  - The usability of the toilet by women
- Establishment of re-use trials to see practically how it works
  - The safety of the products in re-use in gardens
  - The safety of food from pathogen and metal transfer.
  - Disposal of products in areas of which may not need them for re – use.

The project followed this systematic approach to ensure that all major stakeholders are brought on board. This is because, the project is about developing a system and different stakeholders will play different roles. For example KCC would play a major role in ensuring standards, control and regulations to govern the system.

Interest has been shown in use of the dry toilet and re – use of ecosan products. Partners have been identified. These have accepted to contribute 5% of the cost of the toilet and to enter in agreement with the project as partners in promoting ecological sanitation in Kampala.

However, its promotion materials will be developed and radio messages for massive campaign and promotion of ecological sanitation.

## **APPROACH TO PROMOTION OF RE – USE OF ECOSAN PRODUCTS IN AGRICULTURE**

In Kampala 35% of the population is involved in serious agriculture 75% of the farming population are women. 40% of the food consumed in the City is grown within its boundaries as mentioned. Mean while, the soil productivity levels are declining as indicated by the subsequently low crop yield/unit area. Use of organic fertilisers is on the increase given the technical support offered by the Extension service providers.

For the above reasons ecological sanitation is promoted not only as a solution to sanitation problems but also as an opportunity to promote sustainable urban agriculture.

The project plans to carry out demonstrations and trials with full involvement of farmers. These will be carried out on farmers farms/plots and not in green house

Twenty two farmers have been identified and agreements will be signed with them. These will be given farming implements such as spades, wheel barrows, gloves but farmers will provide hoe and labour.

Farmers will be involved in plot demarcation and decision on the 2 crops to be grown. The plots will be about 100square feet and the first trials will be done with urine since it more acceptable to farmers. The Demos will study the physical changes in plants given the application of urine.

In another season trails will be done. These will involve in depth studies such as

- Number of times of application of urine/period
- Concentration of urine applied to crops
- Application of urine with other organic fertilizers
- Project structure

The Project recognises that no ready-made concepts yet exist for “closing the loop on sanitation” in an urban environment like that of Kampala’s. It therefore proceeds with caution, ensuring that adequate resources for “software” as well as for “learning” accompany the introduction of Ecological Sanitation as a new, alternative technology. Due to its cautionary principles, the Project has been seen to progress comparatively slowly. Following the successful completion of the Kampala EcoSan Project, KCC expects it will be possible to initiate large scale dissemination of Ecological Sanitation in Kampala.

## **DRY TOILET DESIGNS FOR THE PROJECT**

The project has developed three major dry toilet designs. These have been designed has been developed basing on experiences from South Western Town Water and Sanitation Project. The designs are:

- Double chamber no bucket
- Elongated single chamber having door at side and back with use of basket/s
- Elongated single chamber having door at side and back with use of basket/s and a washer

These are basic designs to be constructed with flexibility to accommodate users desired/preferred options. For example, squatting, sitting, use of bucket, separation of adults from children use etc. the last two designs were developed to have very cheap option with compromising the standards. These have been adjusted to avoid mistakes already experienced in some toilets constructed by other players.

## **CHALLENGES EXPERIENCED**

- Coordinating disciplines which were working independently with no multi-disciplinary approach to sanitation. Ecological sanitation being an alternative (new) approach to sanitation problems has been the first of its kind in KCC to bringing the four disciplines together. However, harmonizing and implementing of the four project units has not been smooth.
- Coordinating part – time staff has not been easy
- Unacceptability of re use of ecosan products especially faecal products
- There has been a working forth and back as the project trys to accommodates/rectify mistakes identified in other players constructed designs especially water in the Chambers.
- Designing a cheap alternative without compromising standard is difficult especially that KCC is in charge of the standards.
- Designing a collection system from areas of high production of ecosan products and but not interested in re – use to areas re – use is foreseen as a big challenge

## **OTHER INITIATIVES TO INTRODUCE ECOLOGICAL SANITATION IN KAMPALA**

A number of initiatives to improve the sanitary situation in Kampala are being taken by KCC and National Water and sewerage corporation(NWSC), together with various Central Government agencies, Non-Governmental- and Community-based Organisations, and the Private Sector. By now, most of these actors are aware of and appreciate the concept of Ecological Sanitation, and have (in dialogue with the different Donors) adopted different approaches to its introduction and promotion;

- Introducing EcoSan as one of several sanitation options as part of integrated community-based programmes for improved health and hygiene.
- Continued promotion of VIPs and water-borne solution only, awaiting results from the Kampala EcoSan project as proof of that EcoSan is really an option for Kampala.
- Provision of public/ communal urine-diverting toilet hardware, leaving “software” for later as well as the question of what to do with the fertiliser products.

The Kampala EcoSan Project links up with these other ongoing activities in Ecological Sanitation. It has incorporated them into its system of Monitoring and Evaluation, to maximise the “learning” effect to the benefit of the further improvement of Ecological Sanitation concepts and implementation modalities suitable for the Kampala setting.