

KISORO TOWN ECOLOGICAL SANITATION, O&M EXPERIENCE IN SOUTH WESTERN UGANDA AS CONTRIBUTION TO WATER RESOURCE PROTECTION

Dorothy Nyiraneza, sanitation officer, Kisoro Town Water & Sanitation Office (KiToWaSO),
Franz Hoellhuber, consultant, tbw Kisoro

PROJECT BACKGROUND

Kisoro is a border and new district town in South Western Uganda (latitude 1° 15' S, longitude 29° 45' E) at an altitude of 2000 m a.s.l. and a current population of around 10.000 inhabitants. Among the many particularities of Kisoro Town the following should be noticed: volcanic geology results in absence of surface water although rainfall is high (1500 mm/a) and dry season short (2 months). Only few springs and boreholes are available in relation to the density of population, which is the highest of all Ugandan districts due to good soil fertility.

Ecological Sanitation was considered as one key component of water supply due to the fact that Chuho, the only viable spring in terms of distance, yield and water quality is lying around 100 m lower and at a distance of 4 km from town. High and inhomogeneous permeability of soil and underlying geological formations generates likelihood of spring pollution in case of increased pumping of water and wastewater production.

Importance of Ecological Sanitation has increased in several steps throughout project implementation. In contrast, budget for sewers and sewage treatment has been reduced and biogas has been cancelled due to more precise assessment of investment cost efficiency in terms of groundwater protection.

ECOLOGICAL SANITATION IN KISORO

Over 250 units have been built in the years 1999 and 2000.

Both compost and dehydration types have been implemented although compost has only been used for household units in the earlier phase.

Dehydration toilets have been built for households, institutions and the general public.

A gradual development of understanding by project staff is documented by the fact that initially VIDP was assumed to be the most sustainable solution for medium income households. Before implementation of physical structures this had shifted to compost toilet and progressed further towards dehydration type with urine separation.

PUBLIC TOILETS

Four identical structures have been built at market places (Old market, New market, Taxi Park, planned Rusiza market). Each is composed of a male and a female wing with a store and attendant room in between. Female and male wing comprise two toilets and two showers each. Additionally, a urinal is available in the male wing. One seating and one squatting toilet is available in each wing. Structures have been carried out at a high standard and cost to make them attractive for customers and easy to clean and maintain.

All toilets except Rusiza started operation around July 2000. Operation is subcontracted to attendants who charge the fees set up by KiToWaSO (shower 200 USH, toilet 100 USH, urinal 50 USH) and receive a share of 50% out of which they have to pay toilet paper, ash / sawdust, water, soap and other cleaning material. Daily turnover is approx.

25 to 30 customers at new market, 80 to 90 at taxi park and 10 to 25 at old market. These figures can be multiplied by 100 to get the approximate turnover in USH. The general state of cleanliness is excellent and superior to many European public toilets!

INSTITUTIONAL TOILETS

Three identical structures have been built, one at Town Council administration offices, at Kisoro Primary Teachers Training Center girls and boys each. Each unit has six toilets with rising seats (Mexican model) and urine separation. The number of users is quite different in the three cases. There are only 2 to 10 persons per toilet in the Town Council, 9 to 12 for TTC girls and 20 to 40 for TTC boys. While the two first units operate satisfactory in general, the third one used to have problems due to overloading which have been aggravated by defaults in construction (slope and tight connections of urine pipes) and operation (insufficient dry material, clogging of urine pipes with ash, filling up to rapidly to allow 6 months of maturation time).

HOUSEHOLD COMPOST TOILETS

140 units have been built. The arrangement was the owner or user would first have to pay a contribution of 30.000 USH, i.e. 5 to 10% of investment by project, and sign an agreement with KiToWaSO. The project would then construct the toilet substructure plus roof through a contractor. The user would complete the superstructure and put the toilet to proper use. Initially people were reluctant to pay contributions as they were not convinced that they would get something in exchange. Any payment was therefore accepted and some toilets built near uninhabited houses or empty plots. When demand picked up later, conditions have been gradually stiffened. The last batches of dehydration toilets have only been built where owners accepted to attach them to the house. 68 units have been completed and 45 are operational out of which 5 have operational problems, mainly due to wetness, flies and smell.

HOUSEHOLD DEHYDRATION TOILETS

107 units have been built of which 37 are attached to the house, 70 are near to the house within the compound. Owners of 41 units have completed superstructure as per now and 32 units are operational. Lack of money for completion and use of unfilled pit latrines are the main reasons cited for not unused toilets. Operational problems have been reduced to currently 3 of the units in use. They are due to leakage in the urine pipes and overuse and lack of care at public places, e.g. bar and mosque. Several follow up visits have been required to improve and reach that level of performance.

User seminars and regular performance analysis using a pictorial form allowing easy before / after comparison and statistical evaluation have been required to largely overcome initial difficulties in understanding and accepting the newly realistic standard of a odourless, hygienic and easy to maintain (but not maintenance free!) affordable toilet.

OPERATION AND MAINTENANCE TRAINING AND MONITORING

Pictorial explanations in Rufumbira and English language are pinned to door or wall of toilet. Sprinkling of ash is shown. Motivate to complete and use unfinished units. Propose solutions for specific problems where required. Sometimes access is denied or not possible during normal working hours. In general people have developed positive attitudes, however, and progress made towards clean smell-less toilets is appreciated. The challenge ahead is the start up of efficient private sector emptying service (due to the fact that local traditions and culture will make emptying by owners initially difficult). The first chamber of taxi park has been closed in Dec 2000, three more are

scheduled for March 2001 and will be emptied by October 2001. Demonstration plots are foreseen to visualise fertilisation benefits.

Throughout the year 2001, additional efforts to improve the operational standard have been made mainly through pictorial analysis with results according to the following table.

	Old situation	New situation
General appearance	Good	Better
Flies absent	Fair	Controlled
Smell absent	Fair	Disappearing
Ash present and applied	Poor	Better
Cone shaped "heap"	Not present in 60%	Present in 80%
General hygiene	Fair	Better
Hand washing facility present	Not present	Present in 90%
Rainwater or damp entering	Frequent	Not yet fully controlled
Cleanliness	Poor	Better

LESSONS LEARNT

1. The task of explaining however simple but innovative toilets detailed and long enough to provoke a change of behaviour of the large majority of users has been underestimated.
2. Construction of urine separation is considerably more complex compared to composting toilets. Tightness test has to be carried out during commissioning and pipe gradients need to be assured carefully.
3. Sufficient size of installation in terms of storage capacity and seats as well as attendance need particular attention in an environment of high growth rates and large number of changing users.
4. It is not useful to try to convince customers that toilets seats are "progressive" without more profound analysis. Preferences in Kisoro are quite varying but a clear majority of users prefers squatting and may try to do even on a seat or try to use the closed chamber.

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EXCHANGE RATE

1 Euro approx. equivalent to 1500 USH (Uganda Shilling) throughout project implementation.

1 USD approx. equivalent to 1 Euro + / - 20 % throughout project implementation.