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## Towards Improved Sustainable Sanitation in Learning Institutions; Experiences from Nakuru and Njoro, Kenya --Manuscript Draft--

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## **Towards Improved Sustainable Sanitation in Learning Institutions; Experiences from Nakuru and Njoro, Kenya**

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### **Abstract**

In realizing the great potential that school going pupils have in raising awareness on sustainable sanitation, Resource-Oriented Sanitation concepts for peri-urban areas in Africa (ROSA) sought to address sanitation problems in learning institutions with the concept based on source separation and re-use. These efforts have continued through the S-can Company; within the Capacity-Linked water supply and sanitation improvement for Africa's peri-urban and Rural Areas (CLARA) work. Currently a total of **5** primary schools serving more than **4,000 pupils** and **1** secondary school with over 400 students both boys and girls currently operate UDDTs that are running smoothly. These achievements are however not without hindrances, difficulties and challenges; notably, stigma and high turnover of the school going population. This paper aims at describing such hindrances and how such have been overcome using case specific implementation of sustainable sanitation in learning institutions in Nakuru Kenya.

*Key words: Sustainable sanitation, learning institutions, hygiene*

### **Introduction**

Improvement of school going pupils and students' sanitation is not only the most basic entry point but also the most fundamental intervention in promoting personal hygiene and influencing a generational change in addressing public health. Research has clearly shown that provision of safe drinking water and sanitation together with good hygiene practices, influence learning. Since the introduction of free primary education in Kenya in 2003, school enrolment has risen significantly. National primary school enrollment has risen to over 7.3 million from 5.9 million pupils in 2002. In 2008, free secondary education was also introduced raising significantly the number of students enrolling in secondary schools. In realizing the great potential that these school going populace have in raising awareness on sustainable sanitation and in addressing public health related issues, poverty alleviation and attainment of the Millenium Development Goals (MDGs), more efforts are being put towards ensuring that the school going fraternity has adequate hygienic and sustainable

sanitation. MOOIJMAN et al. (2010), listed two important components that a school campaign on water and sanitation should encompass: provision of safe water and sanitation facilities and a school education that promotes practices helping to prevent water and sanitation-related diseases and teaches the wise use of water and favourable hygiene behaviour in the future generation of adults. Such suggestions leave no doubt that any sustainable sanitation undertaking in the learning institution should at least involve adequate planning, management, training and capacity building, coordination among the stakeholders involved with the school going population playing a major role. However, whereas it has been found out that there is an intrinsic link between, capacity building, involvement of the stakeholders, long term sustainability of any sanitation system and effective operation and maintenance of the system neglect of operation, the pupils and students are rarely asked or consulted about the sanitation facilities within their schools and neither are they educated on proper operation and maintenance of the facilities. This leads to sanitation facilities that are not adopted to the needs of the students, unsafe and poorly operated and maintained facilities. Through the S:CAN initiative and CLARA project that is focused on strengthening the local capacity in the water supply and sanitation sector, a number of learning institutions (mostly primary and secondary schools) have benefited from improved sanitation thus bringing about behavioural change that is believed to have a lasting impact. This paper suggests that sustainable sanitation will only become viable not only from mere provision of facilities and increase in numbers but also by having a holistic participatory involvement of the stakeholders all along the sanitation provision continuum there by enabling the school going populace realize their right to basic education and the right to a healthy and safe learning environment and be transformed to better and productive citizens.

### **Background on the implementation area and schools**

Njoro where four (4) of the primary schools are located, is an agricultural town 18 km south west of Nakuru and it is the district headquarters of Njoro District in Rift Valley Province. The town is home to the Kenya Agricultural Research Institute (KARI) and Egerton University situated 5 km south from the town center. It is populated by people from all ethnic groups in Kenya. Despite these eminent positive reflections of the town and rise in status to a District, this town has neither sewerage connection nor wastewater treatment plant. This leaves few people to use septic tanks while the majority relies on pit latrines. The condition of the existing pit latrines pose serious health issue to the community. . With this in mind, four schools within the larger Njoro District were purposively identified as case studies towards implementation of improved sustainable sanitation. These primary schools are Ndarugu, Egerton, Mwigito and Njoro Township. These schools are

mixed day primary schools with a population of over 1,400 pupils with the ratio of boys to girls being 60: 40. However, they have interesting locational differences that inform information on the implementation of improved sanitation in learning institutions. Whereas Ndarugu Primary school is within the urban setting of Njoro town, Mwigito is the rural setting with plenty of land and surrounded by farming communities. Egerton Primary is within Egerton University .

### **Methods:**

Before the collection of the data, the participating schools were purposively selected based on a criteria developed to briefly determine the willingness of the identified school to participate, operate and maintain the chosen sanitation system. A Memorandum of understanding (MoU) and contribution of the schools' management in terms of basic labour were identified as key entry indicators as well as the willingness to attend the awareness and demonstration workshop. After the implementation of the Urine Diversion Dehydrating Toilets (UDDTs), an evaluation of the functionality, operation and maintenance of the systems was carried out. This forms the basis of this paper. The informants were told that the study sought to find out the sanitation situation in their schools and their take on the improved sanitation systems implemented in their schools. All the informants were requested to provide background information on their sex, age, and safe sanitation behaviour and to state which school's sanitation facility they use and how frequently. They were asked to write down their responses and submit them to their respective class representatives who in turn handed it over after one week to the researcher. Interviews, questionnaires as well as observation were also used to collect the data.

### **THE SCHOOL'S INTERVIEWS AND FINDINGS**

Six (6) interviews were conducted on the school level. One on a mixed day secondary school (the only one implementing a urine diversion dry toilet and five (5) in mixed day primary schools. A short summary is given on Table 1 below.

Table 1: Type of toilet built and a short description

Beneficiary	No. of toilets	Functioning	Short description
Crater View Secondary School	8	Yes	One system with a boys and a girls section. 5 UDDTs for girls with a compartment of 5 urinals and 3 UDDTs for boys with 4 ceramic urinals and 8 locally made urinal bowls. A urine containment/ collection tank and a drying shed to complete the loop
Kaptembwo Primary School	2	No	One system with a boys and a girls section. None of the facilities are in use
Ndarugu primary school	7	Yes	System is in use. Closed loop observed, a care taker employed and undergone various awareness and

			training sessions
Egerton primary school	7	Partly in use since the school has now constructed new pit latrines.	Closed loop observed, a care taker employed and undergone various awareness and training sessions
Mwigito primary school	10	Have been in use till the community vandalised some piping system	One system with a boys and a girls section. 6 UDDTs for girls with a compartment of 5 urinals and 4 UDDTs for boys with 7 ceramic urinals. Urine containment/ collection tank and a drying shed to complete the loop are in place. Made of masonry works and floored with ceramic tiles.
Njoro Township primary school	8	Have been in use till when converted for the secondary section and developed operation and maintenance problems.	One system with a boys and a girls section. 5 UDDTs for girls with a compartment of urinals and 3 UDDTs for boys with 4 ceramic urinals A urine containment/ collection tank and a drying shed to complete the loop. Made of masonry work and floored with ceramic tiles

The system at Crater View Secondary School was constructed within the ROSA Project way back in 2009 and has been operational since then. By the time of construction, the school had inadequate pit latrines for the students despite the school being a one stream by then as shown below in the pictures.



Figure: 1 showing the types of facilities before the intervention and after the intervention

After identifying the need for improved sanitation, the UDDT facilities in all the schools were constructed comprising boys and girls units with each unit having a urinal for each gender. A drying shed was also constructed and a urinal collection tank that has an overflow to the school's planted trees. The facility at Crater View Secondary School was fully paid for by the ROSA project while all the other facilities in the primary schools were fully sponsored by the S:CAN community in Austria.. The superstructures to date still look relatively new due to the quality of the materials that were used for construction.



Figure 2: Pictures showing the quality of materials and work done

This opens an interesting finding when considering the materials to be used. Since the objective is to have sustainable sanitation, it becomes imperative to use available but long lasting materials to avoid the ever recurring expenditures on replacement of materials. Interestingly, the quality and durability of materials is not highly considered. As much as it has been advocated to use locally available materials, their durability has to be taken into consideration. This is most important where urine may come into contact with the surfaces thus causing corrosion a usual case in most learning institutions resulting into replacement now and then and when funds are not available the school ends up with unhygienic and potentially dangerous facilities.

During the one on one interview with the Crater View Secondary and Ndarugu Primary schools' principals and students, it emerged that up to now, the facilities have been good and students have been using the facility more frequently as compared to the pit latrines. At Ndarugu Primary School, the pupils had even voluntarily developed a duty schedule for cleaning the facility as shown in Figure 3.

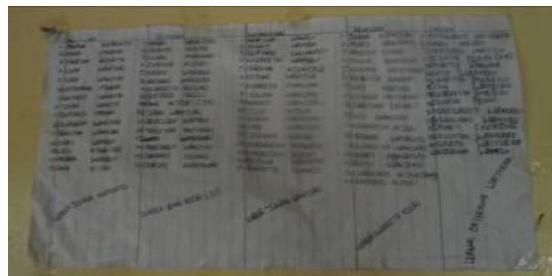


Figure 3: A list developed by the pupils of Ndarugu themselves to take care of their facility as a result of inclusion in the sanitation provision process.

This indicates the pupils' responsibility and dedication to having a hygienic sanitation facility. This kind of an initiative will go a long way in ensuring that the facilities in the learning institutions achieve their objectives where everyone is responsible. This however was not the case in the secondary school where the hygienic standards were maintained by the caretaker. This impacts positively or negatively on the cleanliness of the facility. It was observed that where the users

maintain cleanliness voluntarily there was a sense ownership unlike where it was done through punishment.

It was also found out that the girls' facilities were very clean in all the schools. For instance, the boys' unit at the Crater View School was relatively dirty with two UDTs urine pipes blocked. This was an interesting finding having a bearing on age, gender and sanitation. Culturally it is the women's gender role to take care of the sanitation facilities. This could have influenced the attitude of the girls' to ensure that their facilities are clean. Furthermore it is always culturally presumed that girls are keener in observing cleanliness as compared to boys. This cultural view influences their overall behaviour unlike the boys who are presumed to be rough, more notorious and none caring. This has been confirmed with destructions in the boys' units. They even intentionally leave the hand washing water running a case that was actually observed despite having been given strict instructions to turn off all taps after use. This could explain why there were blockages and breakage of some urinal bowls. In view of age, the boys unit at the primary level of education was found to be relatively cleaner as compared to the ones at the secondary level. At the primary level, the boys seemed to be keen in observing the general school rules and regulations. The findings from the work done through ROSA and CLARA Projects, and with financial support from S:CAN, it is evident that if sanitation practitioners are then to have the sanitation paradigm shift, then it has to start in the early years of formation for the populace to have positive sustainable sanitation transformation in thinking. Such findings will inform sanitation practitioners since it opens the view of this important populace and their way of live. The schools on its own had carried on informal sensitization more so when there are new student's admitted. It emerged that the UDDTs are the most popular sanitation facility among the students with an average usage of 95%.

In all the schools, the full sanitation loop was covered. Drying beds were constructed in each of the schools' compound. Three of the schools hired an emptier to transport the faecal mater from the toilets' vaults to the drying sheds once every three (3) months. The emptiers were paid KES 400-600 per emptying depending on the location. The faecal material was dried in the shed and then applied to the areas palnted with tress as soil conditioner. It was noted that the sheds had no smell but there were non-biodegradable materials (sanitary towels) in the sheds. The non-biodegradable materials had to be removed and burned before the sanitised material was applied as a soil conditioner. Considering that the girls have to use sanitary towels, it is imperative that the practitioners put into consideration, awareness on these sought of materials rather than just having the sanitary bins within the facility. This is informed by the fact that girls would like to maintain

absolute privacy of this important period in their life cycles. It was realised that lack of proper information about the nature of the sanitary materials and negligence were the contributors of these materials finding their way into the drying shed.



Figure 4: Pictures of the drying shed and thefaecal material inside

The drying shed as can be seen. The choice of iron sheets is to facilitate more heat from the sun for the sanitization of the faecal matter. Eventually, the iron sheets will be painted black for heat retention. The sides are made up of mesh wires strong enough to keep away any animals or birds but suitable to ensure enough air circulation.

These two schools (Crater View Secondary school and Ndarugu Primary school) have been one of the great successes and the schools' principal and headteacher noted that such success of the ROSA and S:CAN/CLARA project in the school sanitation improvement can only be attributed to the participation of all stakeholders. They were quick to note that the students are the ones who made the decision to have the facilities constructed. The school Board of Governors was also in agreement as well as the parents through the Parents Teachers Association (PTA). This puts forth a strong case for the involvement of all the would be users and beneficiaries not only for the UDDTs but also for any sanitation system if it has to be practical and achieve its purpose. In terms of the operation and maintenance, there was a caretaker who cleaned the toilets daily and made sure that there was ash in all the toilet cubicals. Any new student or pupil had to be trained before using the facilities. This forms a collective responsibility and ownership where the old students have taken up the responsibility to train new students. Training on use is however neglected in many sanitation systems resulting into their non performance or operation. This is normally the case in learning institutions when new class one pupils join formal learning in the primary formation of their education. Social marketing should be always undertaken to raise public awareness, create demand, sensitise the beneficiaries and promote safe and sustainable sanitation.



Figure 5: Awareness creation and involvement of the primary stakeholders.



Some of the facilities in the learning institutions have failed due to a lack of commitment and defined expectations of the stakeholders. The expectations of the beneficiaries were different from the expectations of the project implementers. This has been a major challenge since even after the meeting where the stakeholders promise to meet the general requirements of operation and maintenance later on they fail to meet their obligations. This was found out to impact negatively on all the relevant procedures that cater for the complete fulfilment of the sanitation value chain. It is recommended that in future implementations, there should be manholes points designed as stop gaps for unblocking the urinal system just incase there is any blockage. Boys were also found to be cheeky and at times turn around and use the pinholes wrongly. In this regard, it is recommended that these facilities are better off in girls setting than in a boys setting in secondary school level but perfect in primary level of education. To ensure sustainability, the schools' management should closely monitor the construction of any sanitation facility to ensure appropriate standards and appropriateness of the system as well as location either for construction or disposal and reuse. In addition, implementers and all the relevant stakeholders should be quick to mention any challenges once noticed so that they are dealt with immediately.

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