

THE PILOT OF ECOLOGICAL SANITATION PROJECT IN MAJUMBASITA, DAR ES SALAAM- TANZANIA

Edmund John, Dar Es Salaam
Project Technical officer
EEPCO
P.O. Box 7018
Dar Es Salaam- TANZANIA
E-Mail: eepco@raha.com
Eddjohn@excite.com

This paper describes the on going pilot project of Ecological Sanitation in Tanzania, the project that has been introduced in Tanzania at the end of last year (November 2000). The project is funded by Unicef and implemented by EEPCO a National NGO based in Dar Es Salaam.

Just like many African countries, unplanned settlements have kept increasing in many Tanzanian towns and Dar Es Salaam in particular there are more than ten including Majumbasita and there are no immediate means to upgrade these settlements. A substantial population is currently found residing on un-surveyed land mainly on the hillside areas of Dar Es Salaam. The City has the estimated population of 4 millions in a land of 139300 hectares. A baseline survey carried out by EEPCO in 1999 indicated that the level of sanitation service was unsatisfactory about 68% coverage including the temporally tradition toilets. Although the master plan stipulates the removal of these squatter areas, they are likely to remain in existence for many years to come, because of their political sensitivity. Many problems arise due to the poor existing infrastructures, lack of hygienic sanitation; poor disposal of waste, consistently negative balances of nutrients there is widespread processes of soil fertility decline which most of them end up into eutrophication of Msimbazi river. The problems of diarrhea and other faecal –related diseases remain highly endemic.

In ability of existing sanitation systems to manage adequately the massive and still increasing volume of human excreta is the main cause for the high incidence of infectious diseases in most of our settlements. This has contributed significantly to the wide increase in ecological problems. The main reasons behind these problems are rapid population growth and an unsuitable technological response.

Conventional sanitation technologies based on flush toilets, sewers, treatment and discharge cannot solve these problems in urban areas like Majumbasita where the lacking of necessary resources such as water, money and institutional capacity are existing, that is why the use of ecological sanitation has been proposed and implemented to solve these problems.

Introduction

Majumbasita, which is in Kipawa ward, is a commune with a total of 22000 inhabitants' 11km along Pugu road. Most of the families here have their own house with few tenants. Around each house the family has small plot, 170- 400sqm, where they have a piece of land for garden. There is no piped water to those living to the north near Msimbazi River. About 85% rely on well. One third of the households have a hygienic latrine (pour-flush, septic tank or double VIP in good condition) while 68% have a simple, shallow pit toilet and the rest have no toilet. About 75% of all sanitation systems in the area have been raise up due to the fact that the water table is too high, seepage from septic tanks and pit toilets pollute groundwater. Although a

bigger number of people have access to some form of latrine, human excreta have been spread through the environment as a result of fault sanitation systems design, their incomplete implementation, poor operation and improper use.

The EcoSan toilet

Two types of EcoSan pans has been used, the seat and squatting pan based on the principle ecological sanitation both have a urine-separating or non-mixing system that enables the separate storage of urine and faeces. The urine is lead through a pipe from a urine collector into a special container. The faeces, also collected in a separate container, are then mixed with ashes, soil or any other suitable material available. By not mixing the urine with faeces, which contain most of the pathogens, the bad smell from the latrines is very much reduced. It also means that the treatment of the two ingredients can be done in a proper way - urine to the fields as fertilizer, and faeces kept under control to minimize the effects of pathogens and intestinal parasites, and later used in the fields as soil conditioner. Reaching November this year the project will have more than 95 EcoSan toilets, about 17% of households have requested for the built in toilet. All household units constructed are double-vaulted with urine diversion. So far 45 toilets have been built at the household level and public toilets based on the same principle at Karakata primary school. The demand is still high due to its advantages to the environment.

EEPCO is co-operating with Local government, Women groups, Ministries of Health, Water and National PHAST facilitators to raise the awareness of health aspects of sanitation behaviour, which is important because it determines the degree of sustainability of an intervention in ecological sanitation. PHAST is a National recommended participatory method, which has been used to assist the Majumbasita community to analyze their own problems situation and to come up with solutions that are most appropriate for their circumstances. The methodology has been integrated to the project because when new latrines are constructed in a programme and sanitation behaviour is not addressed at the same time, people are unlikely to support the improvements with sustained behaviour change needed for improved health. All these factors have been considered and the beneficiaries have been cooperative in implementation of this project.

The beneficiaries are selected by using the local government according to certain criteria agreed by the community during the PHAST training to mention few; new sanitation is needed for the family, willingness to try Ecological sanitation system by contributing the superstructure, sand and labour other parts to the completion of toilet are covered by Unicef, and a piece of land for the household gardening.

Ecological sanitation as it has been implemented by EEPCO mean the sanitation systems that are based on the premise that wastes should be reused within compound/garden or agriculture thus providing nutrients and water whilst concurrently reducing the adverse environmental pollution problems related to excreta disposal, is a cycle, or closed-loop system, which treats human excreta as a resource. In this system, excreta are processed on site until they are free of pathogenic (disease-causing) organisms. Thereafter the sanitized excreta are recycled by using them for agricultural purposes. Key features of EcoSan are therefore:

- Prevention of pollution in Msimbazi river and disease caused by human excreta;
- Treatment of human excreta as a resource rather than as a waste product; and
- Recovery and recycling of the nutrients.

Advantages

The EcoSan has great ecological and economical advantages; the users were all satisfied with how the latrine is performing. According to the latrine owners there is no more bad smell, no ground water pollution, less sanitation based diseases, cheaper in construction they are saving up to 50% costs of the normal pit latrine, it saves water- needs very little water, only for cleaning the toilet once a day, requires small space and some of them have installed the unit inside the house. As an additional benefit the community mentioned the regular use of urine as a natural fertilizer to their gardens, the study of yielding comparison and the level of nutrients is still going on. The sanitized wastes from the EcoSan are yet to be used because they are not filled up. The piloting project is also taking care of wastewater from washing and cleaning by giving the community the technical advice on how to dispose the wastewater safely without contaminating the groundwater taking into consideration the high water table that existing in Majumbasita.

Compared to the conventional systems, ecological sanitation systems are technically simple and can be built at low cost because they require no water supply, no sewers and no excavation. More importantly, human waste becomes part of a natural eco-system as stated above, recycled and returned to the land for food production and food security rather than being dumped as a pollutant. EEPCO is always working very closely with the community because the system demands relative cleanliness that is basing on the principle of non-mixing of urine with faeces. A monthly monitoring sheet has been distributed to the community concerning the uses of EcoSan and program for continued follow up in collaboration with line ministries and other stakeholders has been developed.

Perceptions of Urine diverting toilet

Following the frequently meeting conducted in the piloted area so many questions were raised concerning the risks of handling urine or wastes just after the pit is full, smelling of the toilet and the use of water for ablutions. All the questions were answered properly to the satisfactions with vivid example from 45 EcoSan units built and also from different parts of the world where the system has been used. Attitudes and perceptions about health hazards and people's revulsion against urine and faeces vary between cultures/ religions and often people's attitudes towards urine differ from those towards faeces. Sanitation behaviour is based on ideas and taboos associated with defecation and on traditional habits originated in local cultural, social and environmental conditions. In principle there is a large extent of cultural variation in defecation practices, which will eventually determine what technology options will be acceptable to the people. The project has considered many factors, ie religions that have an influential in sanitation practices, for instance, in Majumbasita communities, apart from thorough training conducted concerning the proper use of EcoSan an allowance has been made to the design so as to include the ablutions part in the toilet whereof the wastewater will be lead to the small wetland outside the toilet. Otherwise technicalities of it has been praised and some have requested the latrine to be the built-in (part of the house or inside the house) sometimes the communal facilities may be less acceptable due to religious barrier but this has been solved by involving the religions leaders into the program.

Conclusion

The introduction of this project has brought bigger changes to the community environmental sanitation. The organization is doing the promotion of the technology in Majumbasita but a number of requests are still coming from other regions to have this technology in their areas, to meet these demand we have collaborated with the

line ministries so as we might finish the pilot project and replicating the successes to other areas.

Since this is a new project in Tanzania awareness campaign was the backbone of the EcoSan project a lot of IEC information materials has been prepared and pre-tested to the community. The designed poster will be based on the principle of ecological sanitation in Majumbasita Environment taking into consideration the culture and religious perspective.

References

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