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**DELIVERING WATER, SANITATION AND HYGIENE SERVICES
IN AN UNCERTAIN ENVIRONMENT**

**A 'two-track' approach to sanitation and waste
management in Adjumani, Northern Uganda**

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A 'two-track' approach has been adopted in order to tackle the problems of sanitation and waste management in the town of Adjumani, Northern Uganda. The first track consists of a sludge treatment facility for the disposal of sludge from existing toilet systems (pit latrines and septic tanks). The second track consists of the promotion of ecological sanitation toilets and wetland systems and of a small composting facility where the solids from ecosan toilets can be disposed of. A sanitation levy on the tariff for piped water is used as a financing tool.

Introduction

The Adjumani District in Northern Uganda is still recovering from the fierce civil war that has been waging between the LRA and the central government, which has resulted in many lives lost, in a devastated infrastructure, and in large tracks of abandoned agricultural lands. Since the pacification, people have started returning to their lands and the infrastructure is being rebuilt. However, many problems of an environmental nature are still remaining:

- Soils in the district are generally low in humus content and are affected by droughts, leading to regularly occurring shortages of food.
- The town of Adjumani has a serious problem of disposing of its solid waste. Only a minor portion of solid waste is being collected, and what is collected is being deposited in a completely inadequate landfill.
- The town has an equally serious problem with pit latrines and soak pits. These are collapsing during the rainy season and endangering the groundwater, on which the town is relying for its water supply.
- The water supply in town is inadequate and does not meet the demand. Water testing is rarely performed, and thus limited data is available on water quality.

The problems are compounded by a chronic lack of public finances and local know-how.

In the wake of these problems and as a component of the RUWASS programme (Reform of the Urban Water and Sanitation Sector), GIZ (the German Development Cooperation) has advised and supported the Town Council of Adjumani with respect to an integrated, recycling oriented approach to water supply, waste water disposal, sanitation, solid waste management and environmental matters in general. Through this collaboration, which has started in 2008, a number of activities have been taken up regarding water supply, latrine sludge treatment, ecological sanitation, solid waste management and composting, and the greening of the town.

Approach

A 'two-track' approach addressing both the problem of the disposal of sludge from existing toilet systems, and the promotion of environmentally and groundwater friendly sanitation technologies has been adopted in order to tackle the sanitation and waste management problems. The approach is consisting of the following components:

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- Construction and operation of a sludge treatment facility (for pit latrine and septic tank sludge). The treatment is performed using three artificial wetlands which have been constructed in a clayish area. The expected capacity is up to 12 truck loads (4 m³ per load) per day.
- Promotion of environmentally and groundwater-friendly sanitation technologies such as ecological sanitation and wetland systems for waste water treatment. In this context, a derelict ecological sanitation toilet has been rehabilitated at a school, an additional school toilet has been constructed, a low-cost ecosan toilet, and a user friendly public ecosan toilet have been demonstrated. In addition, a series of workshops aiming at closing the information gap on ecological sanitation and the training of masons on the construction of ecosan toilets is being conducted, and private ecosan toilets are being promoted by making essential parts available. At the moment, five communal ecosan toilets are being constructed in order to make sanitation facilities available to clusters of low income residents.
- Pilot project on decentralized composting of organic municipal waste. This project includes the collection and treatment of biosolids and urine from ecological sanitation toilets, and will promote organic agriculture and horticulture using the resulting compost and liquid fertilizer. It also includes the sensitization of the public on proper waste disposal and home composting. Decentralized composting is performed in a small, hand-operated facility of a capacity of about 600 Kg of fresh organic waste per day.
- The collection of a groundwater/sanitation surcharge on the charges for piped water in order to support the ecological sanitation and composting activities. The surcharge enables the Adjumani Town Council to support the construction of ecosan toilets by making the special parts required for the diversion of urine available free of charge. The composting facility is supported by the purchase of compost for planting trees and ornamentals in town.
- Advice on greening and beautification of the town.

Sensitization and participation

In the approach outlined in the previous section, participation of the residents is playing an important role:

- In the case of pit emptying and sludge treatment, pit emptying services are offered by several companies; one of them is also operating the sludge treatment facility, which is owned by the municipality. Residents can thus hire the services of one of these companies, which are all required to dispose of the sludge at the municipal sludge treatment facility.
- For ecological sanitation, the Town Council is also relying on private initiatives to both have the toilets constructed and to construct them. For that purpose, masons and contractors have been trained, and a list of approved trained masons is available from the municipality. In addition, the Town Council is making the parts mentioned earlier available to those constructing ecosan toilets, so far with pretty good results. These parts are worth about 10% of the costs of a well constructed toilet.
- Sanitation coverage in general has been boosted by the precondition in other projects (like the expansion of the water supply system) that a toilet be available on site in order for a household to benefit (like receiving a subsidized water connection). This has also helped the promotion of ecological sanitation toilets. In connection with the project of expanding the water supply system, five demonstration ecosan toilets have been constructed by the Ministry of Water and Environment.
- The composting facility is also operated by a company – in the case of Adjumani, it is the one that is operating the sludge treatment facility. The success of the facility is based on the availability of properly separated organic waste, and residents, the sales people at the main market in particular, are requested to separate their waste into the biodegradable organic and inorganic fractions. In order to emphasise the importance of this participation by residents, the Town Council is advised to make waste separation at the source mandatory for all residents, and to charge for the collection of unseparated waste.
- As a second approach to managing organic waste, residents can also compost their kitchen and garden waste at home. This is allowing the safe utilization of the solids from the ecosan toilets such residents may be utilizing by incorporating these biosolids into the compost heap. So far, this approach has not found many followers, but a training emphasising this option is planned for the near future.
- Another level of participation concerns the contributions that residents are willingly making via the groundwater/sanitation levy as a financing instrument. The sanitation levy currently amounts to 5% of the tariff for piped water.

The information and sensitization of the public about these options is via traditional means, in particular public meetings, home-to-home visits by Village Health Team members (volunteers) and in some cases

councillors, radio talk shows, trainings of multipliers, sensitization of school children, etc. In addition, sanitation marketing has been the topic of an SMS campaign. A country-wide law requiring every household to have an adequate toilet on their compounds is also contributing to an increased sanitation coverage.

Outcomes and impacts

If current activities are proceeding as planned, the impacts should be manifold:

- Sanitation will be improved by an environmentally-friendly disposal of pit latrine and septic tank sludge, and by a gradual replacement of pit latrines and water toilets by ecological sanitation toilets.
- As a consequence, the threat to the quality of the groundwater from inappropriate toilet systems will be gradually diminishing.
- Proper waste disposal will be available to a portion of the residents and businesses of Adjumani.
- Environmentally friendly organic fertilizers will be produced from separately collected organic material and urine, and will be available to the local farming communities.
- Greenhouse gas emissions resulting from waste disposal activities (transport, landfilling) will be reduced.
- Jobs will be created in construction, service delivery and recycling activities.
- The town will be more attractive and retain its green character.

Conclusions and recommendations

- The technology adopted in the sludge treatment facility has been working well with about 100 truckloads of sludge disposed of so far.
- However, the facility has been affected by fires and intruders who are attempting to graze their animals on the grounds of the facility and are damaging or stealing the piping. The facility is therefore in urgent need of repair, which will require outside funding.
- The promotion of ecological sanitation toilets has been successful with more than 40 toilets of the UDDT type (urine diverting dehydrating toilet) constructed or under construction so far. All of these toilets have been financed by private funds except from the rather limited support given by the Town Council.
- The promotion of ecosan toilets could be accelerated by making the low-cost design more widely known, and by constructing more low-cost demonstration toilets.
- There is a need of training of the owners/users of ecosan toilets about the utilization of the fertilizer products.
- The composting activities have seen the greatest challenges, which are still being addressed.
- In the longer run, there could be a need for an ecosan-friendly low-cost sewage and waste water treatment system for the town centre. The system should preferably allow the waste water to be recovered for irrigation purposes.
- Once finalized, the sanitation approach implemented in Adjumani could serve as a model for other towns in Uganda.

Acknowledgements

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References

For a photo documentation of the project see the following links:

[Http://www.flickr.com/photos/gzecosan/sets/72157630727680876/.](http://www.flickr.com/photos/gzecosan/sets/72157630727680876/)

[Http://www.flickr.com/photos/gzecosan/sets/72157631160051774/.](http://www.flickr.com/photos/gzecosan/sets/72157631160051774/)

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