

**KNOW-HOW**  
**3000**

*Success Story*  
*IN DETAIL*

# Ecological Sanitation - Urine Diversion Dehydrating Toilets



**HORIZONT**  
**3000**

AUSTRIAN ORGANISATION  
FOR DEVELOPMENT COOPERATION

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## List of Abbreviations

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BBM	Procurement company of MIVA, Austria
EcoSan	Ecological Sanitation
NEMA	National Environment Management Authority, Uganda
UDDT	Urine Diversion Dehydrating Toilets

## Imprint

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<sup>1</sup> DKA Austria - Development Cooperation Agency of the Catholic Children's Movement of Austria, Catholic Men's Movement of Austria – KMBÖ, Catholic Women's Movement of Austria – kfbö, Caritas Austria, Department for mission and development of the Archdiocese of Vienna, Welthaus Diocese Graz-Seckau, Brother and Sister in Need – Diocese of Innsbruck, Brother and Sister in Need - Catholic Action Carinthia

## 1. General Information

The St. Joseph's Hospital Kitgum is one of the hospitals in Kitgum district, Acholi sub-region, Northern Uganda (Hospital). It provides a holistic approach in healing by treating and preventing diseases, with a preferential option for the less privileged. The person (human being) is the Centre of all activities and a basic attitude of respect for the human dignity is the guideline for all interventions. To this purpose the hospital is a non-profit making institution of the Catholic Church.

With this document the hospital pretends to present their experience with Urine Diversion Dehydrating Toilets (UDDTs), a special type of Ecological Sanitation toilet, which is operating without water and separates urine from feces, which can be used as further resources.

The experience has been carried out from 2006 until 2013



Chart 1 Localization of the Experience

## 2. Context of the Experience

The hospital was established in the late fifties and became fully operational in 1960. Currently it has a capacity of over 350 beds and employs 246 staff, out of those 56 live within the hospital compound (excluding family members). Staff retention is low due to heavy workload, remuneration differences with government and insecurity in the region. More than 75% of the hospital admissions in 2004/2005 were people who belong to vulnerable groups (like children and mothers). Malaria was the main cause of morbidity in the OPD and leading cause of hospitalisation among all age groups. AIDS is the leading cause of death among adults in the medical ward.

During the Lord's Resistance Army rebel's insurgency in Northern Uganda St. Joseph's

Hospital Kitgum operated 24 hours per day. The Hospital in its mission "To promote life to the full and to heal" and its Philosophy "Journeying with the sick and finding Peace and Joy in comforting the dying and the afflicted", together with its staff who lived with their families within the hospital worked tirelessly serving this population with faithfulness to the mission.

At the time of the first intervention, Northern Uganda was still in conflict of the Lord's Resistance Army and the hospital was hosting high influx of patients and night commuters. There were seven temporary shelters and two permanent shelters for the night-commuters, however a large number of this commuters were sleeping on the verandas and on open ground. All this has caused environment and water problems in the hospital such as:

- Shortage of water for the wards and patients due to high consumption and small reserve water tank. There was also no proper control system or metering to monitor water losses.
- Pit latrines could fill up quickly and the compound is littered with various wastes. Emptying of latrines contributed to the significant funding problem of the hospital. The hospital compound was covered by pit latrine structures either used and dilapidated or abandoned.

Additionally, general cleaning of the wards, patients' beddings and operation theatre linens were done manually and there was a risk of HIV transmission as the prevalence was high especially among the pregnant mothers (9.7%). This picture was most likely to increase as family structures got broken down due to the prolonged violence and insecurity in the region.

A hospital being an institution, in which infection control is to be enforced and practised, needs adequate safe running water, safe disposal of all types of wastes generated and adequate lighting and power for sterilization.

## 3. Main Characteristics of the Experience

The approach to the project was to address the initial challenges in a sustainable manner comparing it to what was done in similar

institutions. Primarily Ecosan approach to sanitation issues would address the challenge posed to the environment and high operational cost incurred in running many pit latrines within the Hospital. UDDTs (Urine Diversion Dehydration Toilets) would mean no use of water for flushing; no need to routinely dig pits and resource recovery is a possibility. Nevertheless, introducing UDDTs in St Joseph's Hospital was a challenge because of the perception of the population in relation to handling human waste. Actually faeces issues are not to be discussed in the open and freely. It's a taboo for someone to add ash to the faeces of the other as it is believe the later would die. To override this socio-cultural challenge, selected Hospital staff, Community leaders and District officials were taken for a learning tour to Maracha Hospital which implemented a similar facility. On return, they shared their experience with the others and a consensus was reached to start by building some demonstration units. Later the concept was fully embraced and the hospital has constructed more than 50 units of UDDTs so far.

Within the Urine Diversion Dehydration Toilets (UDDTs), there is a complete separation of urine and faeces by using of special designed pan either seating or squatting. In doing so, a mixture of solid and liquid parts can be avoided as they are collected, stored and treated separately and used as soil conditioner thereafter. The urine is collected in Jerrican and the faeces in buckets. Additives such as ash, sand, saw dust or lime is added to the faeces to make it less attractive to flies and accelerate the drying process.

The use of UDDTs came as an **appropriate measure to address the initial challenges**:

- The inadequate water supply could not be stretched further since these toilets never needed water for their operations.
- Limited space was already evident in the hospital for digging more pit latrines, so UDDTs never need space for shifting ones constructed.
- The strong stench that was experienced by the latrine users on every visit was eradicated since UDDTs when used appropriately is odourless.

- The potential to further contaminate the ground water wells has been reduced since with this kind of toilet there is not direct contact to the underground water.
- With limited funding the hospital was already filling the burden of monthly emptying the septic tanks. These costs were drastically reduced by introducing UDDTs.

#### **4. Stakeholders and Partners – Roles and Responsibilities**

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The **main beneficiaries** of the practice where hospital staff, patients and attendants, as well as networking partner organizations and some government agency, who used the project for scientific studies.

As parties, institutions and groups of people involved in the implementation of the practice, there are to name hospital technical staff, the BBM (BBM/MIVA) and Ecosan Club (EcoSan), the District Environment Office (NEMA) and local sub-contractors. Each party was basically motivated by the roles they had to play for the common goal of the project, which was to provide sustainable water supply and sanitation to the hospital.

- The hospital/ diocese was responsible for providing a suitable site for the planned construction, expertise, land for construction, storage facility, liaison with government institution.
- HORIZONT3000 represented the interests of the donors in the project and monitors the project implementation on their behalf. They provide financial monitoring and routine reports.
- BBM-Austria supported the project with their expertise in procurement services and offered a reduced cost to overall project deliverables. Project manager on-site identify and supervise various sub-contractors local or international.
- The motivation of the Ecosan Club was to execute their business, and provided expertise in the ecological sanitation concept and water supply
- Government agency provided necessary permits and approvals.

The various roles in the project were carried out jointly by both men and women.

## 5. Resources

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The initial investment needed for a UDDT for an institutional standard is high compared to pit latrines, so there is needed to have a committed source of funding. For instance a stand of UDDT cost about €500 unlike a pit latrine which is €200. Also there is need to have experienced man power on this subject including technicians from the hospital who on completion maintain the system. Workmanship should be of superior standard. A background in construction is enough for the builder to execute the work. You do not need a degree to build this toilet. Maintenance staff can be trained on the job or in most cases we select them from among the team which were involved in the building

The institution needs to provide space/ land for construction of additional facilities like a composting area for the collected faeces. A space of about 2m<sup>2</sup> is enough for one stand of UDDT. The materials to be used should be of good quality to avoid any adverse effect and where possible should be provided from the local environment. Most materials like bricks, aggregates, or sand can be get locally and a few hardware materials like cement, steel, squatting pan, etc. must be purchased elsewhere.

It needs about 10 days to fully complete building one stand of UDDTs and there is need to allocate enough time for training the users of this toilets and subsequent follow up on their adaptability to the system.

## 6. Impact of the Experience/ Practice

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**The hospital** does not need to spend resources on emptying the septic tanks any more, which is a huge saving for the hospital. Also the risk of contaminating the underground water through leakages from pit latrines and septic tanks have been reduced to a minimum which brought a reduction in cost for treating water for drinking purpose.

In addition, the success in implementing this kind of project has positively exposed them to other institutions/organisations who frequently visit their facility for learning of best practices. This also raised confidence even to other

'would be' partners (donors) as this is a good indication of a committed partner.

**To the society/ community at large**, the environmental sanitation within the hospital has greatly improved which unarguably has reduced risk of reinfection around the hospital. In addition, it is to mention that healing starts from the mind, so also having nice scenery around the hospital could be the first step towards healing.

**On the individual level**, the project created employment for those that got enrolled for its operation and maintenance like emptying the buckets, planting flowers/ trees around the hospital and those guarding some of the facility. Moreover, the personnel involved in the operation of this system have got their income levels raised because of sales of the produced fertilizer. This extra bonus payment for the workers is a significant economic gain. Additionally, hospital workers have undergone several trainings during the time on this project which is good to improve their various capacities.

Also the practice contributed to an **innovation in the livelihoods** of men and women for the following reasons:

- The use of urine/faeces to fertilise the gardens has come as a great relieve to the ever growing price of the industrial fertilizer. 50kg of organics soil conditioner costs UGX 10,000 compared to UGX 90,000 for the industrial type.
- A real competitor to flush toilet system has arrived since the UDDTs can be constructed in-house with even decent seating pans like the flush toilet system. People without water connections can now afford to have toilet within their houses.
- The use of ash as additives has echoed the message of reuse, so household no longer damp the ash from charcoal stoves anyhow hence improvement in environmental sanitation.

## 7. Lessons Learned and Recommendations

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Key messages and lessons learned from the experience can be described as follows:

- Proper consultation and involvement of the beneficiaries and partner at each stage of the project is indispensable. Also there has to be an awareness of social-cultural differences between places even within the same idea.
- The commitment by the various parties involved in the implementation is necessary, and a strong support from the management of the hospital is important to the success of the project.
- On-site training is a must. This is evident from the many questions the technicians ask regarding the ongoing works
- Follow up phase has to be planned to monitor how partners cope up with this technology

## 8. Challenges

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**Main challenges** encountered in applying the experience were:

- Changes in the initial design because of realities on the ground, this caused an increase in the overall project cost.
- Hardship in acquiring land for composting yard from the community which caused delays in the overall implementation.
- Insufficient skilled manpower for this kind of project.

These challenges have been **addressed by**:

- Routine meetings among the stakeholders.
- Regular monitoring visit by the implementing team.
- Outsourcing of some specialised skilled workers.
- Redesign of facility to the need of the Hospital and environment.

Nevertheless there **remained some problems** such as:

- It is a challenge to have a building plan approved when designed with UDDTs because of missing supporting policy to support the technology. The authority only acknowledges water borne designs.

- The cost of constructing this toilet still remains quite high which makes it difficult to compete with other alternative systems despite the huge advantages that it comes with.
- The perception of the community about this kind of technology still remains a huge challenge because of the socio-cultural beliefs.

## 9. Sustainability

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Certain elements need to be put into place for the practice to be institutionally, socially, economically and environmentally sustainable:

- Training of the hospital's technical staff alongside installation works should be realized whenever possible.
- The institution management has to be involved in all planning work and the implementation.
- Linkage of the project to the bigger market of fertilizer has to be upscale in order to encourage the users to duly finish the recycling process.
- Certification has to be acquired of products coming from such ecological toilets in order to improve customer's confidence.

## 10. Experience Sharing/ Up-scaling

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For the practice to be replicated it is important to really understand the problem before adapting it to any form of solution. It is important to scan the environment where the project is intended.

The experience of UDDTs has already been shared with a series of institutions in Kenya, Tanzania, South Sudan, Ethiopia and Uganda, and has already been implemented in other institutions in Uganda, such as hospitals, schools and children's home. It could serve as a reference especially for other hospitals in the region.

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