

The “Otji” Dry toilet system

Water is one of the most precious elements and our overpopulated world is soon facing real problems of scarcity. For many places this is today a reality: water is scarce and expensive. One of the most illogical uses of good drinking water is the water toilet commonly used in western society in formal housing. In addition to the large quantities of water used for the famous “flush”, it is also leaking toilets that consume billions of liters every day.



Sewage lines and waste water treatment plants are unaffordable for many communities and they find it impossible to serve sufficient plots because there is not enough water for all, nor do they have finances for the many miles of sewage lines and the pumping stations. The majority of poor people could not afford to pay the water bills. Dry toilet systems could alleviate those problems.

What is the difference to other systems ?

The Clay House Project in Namibia has experimented with available designs of dry toilets that are on the market and has simplified them to the point where they are not just affordable in construction but also easy to service. Most innovative toilet systems are suffering from the

fact that maintenance and servicing are considered a dirty and unhygienic affair. Often they seem to be conceived theoretically and not really proven in daily use. This is where the “Clay House Project” in Otjiwarongo, Namibia, has broken new grounds. They have eliminated all mechanical devices that often clog up or break down in commercially available “ready to install” toilet kits and have changed to a simple system. It is no more a dirty and unhygienic job to service the toilet; it has become a clean and socially acceptable procedure.



Twice a year it has to be serviced

The cost advantage for the community

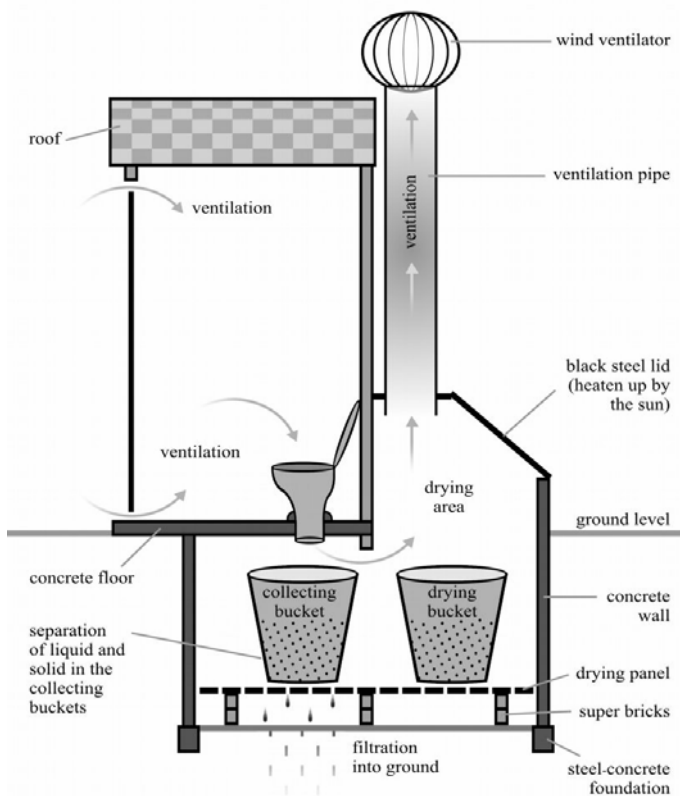
In Otjiwarongo the Municipality has found that they can save more than 1,000 USD per plot if they place an “Otji toilet” on it instead of expanding the sewage system. This is allowing them to go ahead with an ambitious plan to service 3,500 new plots in five years, up from less than hundred a year. Another not less important factor is that the water consumption of the houses with an “Otji toilet” is less than a third of the household using a water toilet.

The cost advantage for the user

Installation costs for an “Otji toilet” are similar to a water toilet. Of course, in the specific case of Otjiwarongo where the municipality actually provides it on a loan base, there is a substantial advantage for the house owner. All commercial models on the market are substantially more expensive than the “Otji toilet”, where all components can be manufactured locally by a small workshop or purchased in the local market. The Dry toilet system can safely be installed and used in households that do not have piped water.

The System

A perforated bucket under the toilet pots separates solid from liquid. The solid stays in the bucket, the liquid runs through a perforated concrete plate into a lower chamber and seeps into the ground. It is known, that the separation of liquids and solids reduces the contamination of groundwater greatly. After approximately six months the bucket will fill up and it has to be exchanged against a second bucket. This is done from the outside with a hook. This bucket now will dry up through the heat created under the metal cover of the tank. Six months later, the procedure is repeated, the bucket with the dry waste is lifted out and the content can be disposed safely or ideally used as fertilizer. This material has been composted; it is dry and does not smell.



Limits of application

The Otji toilet is ideal for dry and hot climates. Where the groundwater level is close to the surface, the entity providing drinking water has to be consulted, as in any other sanitation system. If the toilet is to be installed inside a house, a small electric fan to speed up the extraction of the gases through the chimney is recommended,

as sometimes slight odours will form in the cold parts of the year at night. This is a problem of all known dry-toilet systems, although producers usually do not recognize it.

The system has not yet been experimented in multi-storey buildings.

In areas of high population density the chimney might have to be higher to avoid the possibility of odours forming under specific wind conditions.



Servicing: the "dry bucket" is lifted out with a hook and its content used as fertilizer or disposed

Otji toilets in other countries ?

Undoubtedly there is a potentially very large market in small towns as well as in squatter or slum areas. A comprehensive study has to be made in each condition as to avoid downfalls like many places have reported due to installing different types of commercially available dry toilet systems without proper analysis.

Otji toilets produced by SME's ?

This is an ideal product to be marketed by small workshops of the formal and informal market. Tooling costs are small and the know-how needed is basic. Most elements are cement-sand based and can be precast or built on site. No element weighs more than 50 Kg and can be handled easily. The servicing of "Otji toilets" can also be an interesting business as it has evolved in Otjiwarongo, where a small team services toilets for a small fee twice a year.

The **ECOSUR SOUTH** network provides comprehensive know-how transfer including feasibility studies, technical training (production, quality control) and business skills.

Namibia
Clay House Project
 PO Box 1496, Otjiwarongo
 Tel/Fax ++ 264 67 304 548
 chp@africaonline.com.na

Zambia /Kenya
Comesa LCBMTA
 Tel/Fax ++260 1 252 526
 jonahichoya@hotmail.com
 Jamesmwangi05@yahoo.com

Switzerland
Grupo Sofonias
 Schatzgutstr 9, 8750 Glarus
 Tel/Fax ++41-55-6401081
 sofonias@ecosur.org