



Ecological sanitation a success in Sri Lanka

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The dry-compost ecological toilet separates and sanitizes human excreta, producing a useful soil improver and preventing contamination of ground water. It has proved to be particularly popular in water-scarce and in waterlogged areas.

It is initially very difficult to get traditional institutions (or anyone for that matter) interested in ecological sanitation. The reason is that we all tend to have a certain level of phobia about faecal matter and defecation. We have packaged that subject up and flushed it out of our minds with an image of clean white porcelain and lots of water. It is only when we face a real problem with the flush solution *not* working that our minds become open and interest is aroused. So it happened in Sri Lanka when the National Water Supply and Drainage Board, Rural Water Supply Division, (NWSDB

RWS) found themselves with the problem of delivering sanitation to communities in waterlogged areas in Kalutara District.

The concept of ecological sanitation was introduced in Colombo when the experience of developing dry-compost toilets with communities in south India was presented in January 2000.¹ In early 2001 the island's first workshop, training course and pilot demonstrations of this ecological approach to sanitation took place. Under the emerging project initiative the NWSDB contribute the construction costs of the demonstration toilets whilst Eco-

Solutions provides the workshop, training, support and follow-up costs. EcoSolutions also have ongoing project work in south India where there are now over 200 dry-compost toilets in use, and these toilets are also being promoted in other countries in the region.

What is ecological sanitation?

Ecological sanitation is a sustainable closed-loop system. This is in contrast to most applications of conventional sanitation, which in many situations discharge pathogens (the tiny agents causing disease in humans) and nutrients into groundwater, rivers, waterbodies or the sea. Ecological sanitation regards excreta (comprising urine and faeces) in a different light to conventional sanitation, considering it a resource rather than a waste. Ecological sanitation does the following:

- sanitizes human excreta (making it safe by killing the pathogens it may contain)
- prevents the pollution of rivers, sea, groundwater and water bodies
- minimizes water use (conserving this precious resource for more useful purposes such as drinking, cooking and bathing)
- safely recycles the valuable plant nutrients that are contained in our excreta (thereby helping to improve soil structure and fertility and reduce dependence on chemical fertilizers and pesticides).

Whilst having widespread applicability,² ecological sanitation is especially suitable for use in waterlogged or

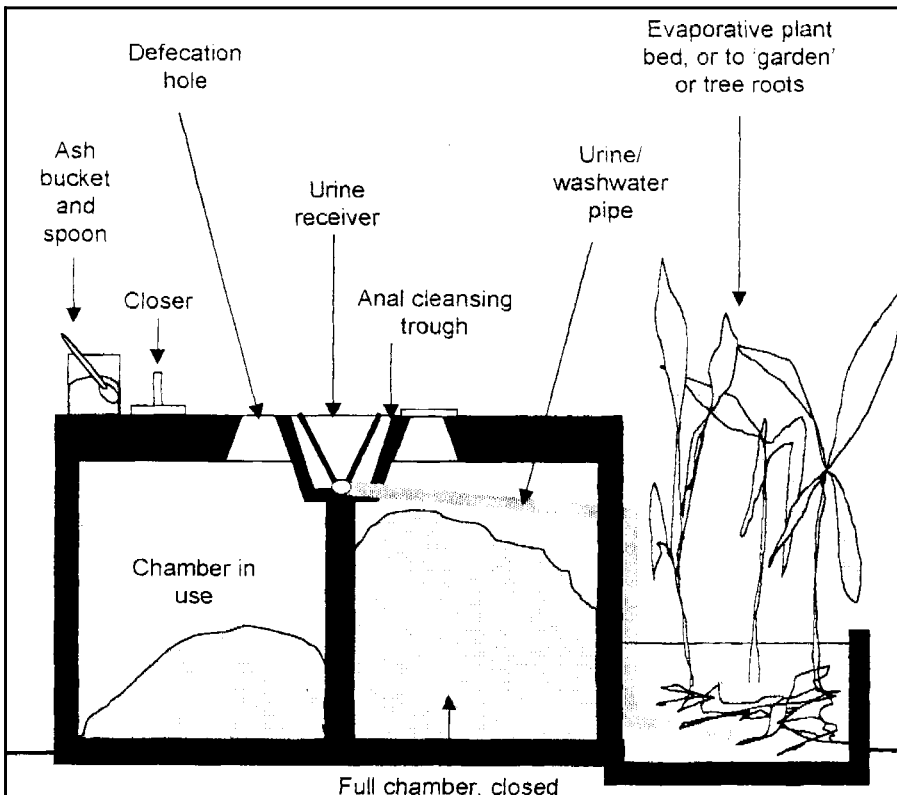


Figure 1 Dry compost toilet with evaporative plant bed



The dry-compost toilet

water-scarce areas and also in situations where sewers are overloaded or there are impermeable strata such as rock at the surface. It is becoming popular in homes in parts of Europe, USA, Australia and Scandinavia, where anti-pollution laws are strict and water bills are high.

In the system approach being promoted by EcoSolutions, the urine is diverted at source and, since it contains up to 90 per cent of the plant nutrients, it is fed directly to biomass (see Figure 1). Plants such as banana, coconut, vegetables, flowers or plants for fuelwood may be grown. The faecal matter, which is the dangerous (and smallest) part of our excreta, is contained, without odour, in a pair of small chambers beneath the toilet where its volume is reduced by dehydration or decomposition and the pathogens are destroyed. Once a year or so this material, which is an excellent soil improver, can be removed and applied to plant beds, horticulture, etc. The mater-



These bananas will be fed with urine and wash water

ial, like a rich soil, is totally inoffensive in appearance and has no odour.

Demonstrations

After the workshop and training course EcoSolutions, NWSDB, Sarvodaya



Mariam BB's house is still a long way from piped water supply

Rural Technical Services and Sevanatha have started the construction of demonstration toilets in Kalutara District, Matale and on the edge of Colombo in Ratmalana and Moratuwa.

Now 30 toilets have been built and are in operation, 10 in each of 3 different locations: (i) urban, (ii) rural high water-table and (iii) municipal areas in a highland town with water constraints. The reactions of users in these different situations is given in the boxes. User training and monitoring of use and operation is continuing.

Case 1. Municipality, urban settlement

Mariam BB is a leader of a women's savings group in the Matale Women's Co-operative Savings Bank. She and her husband, Mohammed Hasan, and their children left their home in Matale town to move to a hillside development on the edge of town. One day this may become an attractive suburb with pleasant views across the valley, but now it is hot, there is little shade, long grass holds the virgin soil to the steep hillside, the access roads are unpaved and the municipal water supply stops short of the settlement.

In the belief that water supplies would soon arrive, Hasan and his wife built their simple house and have, as savings permit, almost completed a flush toilet. The expected piped water supplies have not yet arrived, and Mariam's son and husband carry 60 litres of water up the hill to the house every day. For bathing they all go down to the stream or stand pipes at the bottom of the hill.

The opportunity of a toilet that did not need flushing was too good to be true. Even though they had already spent much of their money on the flush toilet they decided to convert that into a future bathing room and save up for a dry-compost toilet. Sevanatha, one of the NGOs participating in the EcoSolutions ecosanitation programme, works with communities in Matale through Lucky, the president of the 260-member Matale Women's Co-operative Savings Bank. They are keen to promote the concept of the dry-compost toilet through the women there, who are already showing they understand the advantages of this approach.

Case 2. Provincial town house

In Matale town, the first dry-compost toilet was built at the home of Nandawathi. Although the family had a flush toilet they were faced each year with the unpleasant problem of it and its tank overflowing during the seasonal rains. Within two weeks of completing their dry-compost toilet, Nandawathi and her family have demolished their flush toilet and are completely at home with the change in technology. When asked what she is growing with the urine and wash water, Nandawathi laughs and says, 'Chillies, but we think we will only use them after drying, not fresh!'

Case 3. Rural village

In the village of Bulathsinhala, in Kaluthara District south of Colombo, the families, mostly workers on a low-land tea estate and a poultry farm, have very poor sanitation and quite cramped living conditions.

Conventional flush toilets, shared by the community were piped to septic tanks. But the high water table, seasonal heavy rains and poor design resulted in most of the septic tanks and toilets overflowing. Some of the tanks are not far from open wells.

The community were shown slides about ecological sanitation, how it worked and how it protected health and water. There was lots of laughter about diverting urine. They had many questions, and plenty of discussion and clarification followed. But in the end they were sure that it was worth a try.

Ten demonstration toilets have now been built in this village, each with one family. The first dry-composting toilet was built here with the help of Nateshan's family. The urine and wash water is piped to a clump of banana. The families, children especially, were keen to participate in the construction. The youngsters soon picked up the idea of how it should be used and were miming the process of use, adding ash, closing the defecation hole and then washing with soap. In addition to the extension work this helped provide repetitive demonstrations to the adults who may have had initial doubts.

Case 4. City suburbs

In Ratmalana, in the suburbs of Colombo, most families face the problem that their homes are on very low-lying land. There is frequently a problem of storm-water drainage, when septic tanks and toilets simply back-up and overflow. Sarojini and her husband used to use a friend's toilet, as they did not have one of their own. Some of the families living in their lane have flush toilets emptying into tanks. However the tanks get full every three months or so and the gully bowser that should come to empty them is often out of service or lacks a pipe to reach down the lane. The tanks are also very prone to overflowing even after only moderate rain.

With these points in mind, Sarojini was prepared to be brave and be the first in her community to try a dry-compost toilet. Like everyone else, she could not really believe that it would not smell. Now the toilet has been in use for some months and she is absolutely convinced that it does not. So are at least 29 other families in Sri Lanka, and the numbers are set to grow as EcoSolutions, NWSDB, Sarvodaya and Sevanatha prepare to show that this will become far more than a pilot demonstration.

References

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A toilet under construction during the training programme