



Individual Bio-Digester Toilet Construction

This flyer documents the implementation of an innovative initiative: bio-digester toilets in Sangli.

A family in front of their bio-digester toilet



Slums that are not covered with sewerage lines have to depend heavily on community toilets, which have regular maintenance problems that often force residents to defecate in the open. Moreover, it has been observed that women find it inconvenient to use community toilets, especially very late at night. Shelter has been exploring technologies that can address such situations of lacking infrastructure and threats to health and safety. Since January 2014, Shelter Associates has widened the impact of the One Home, One Toilet initiative by piloting the construction of individual toilets connected to bio-digester tanks in Sangli-Miraj, where two-thirds of the urban area is unserved by municipal sewage lines.

The first pilot bio-digester toilet was implemented in January 2014, in the Sangamwadi slum of Sangli. This was an aerobic process where the toilet was connected to a

Inside the toilet block



The child from the family pictured above, with the toilet



septic tank fed with a bacterial culture that decomposes human waste into inert water, which can then be discharged into storm water drainage channels without posing health and safety risks. However, due to an ineffective bacteria culture that did not properly degrade the fecal matter, resulting in foul odors, this pilot was stopped until a more appropriate culture could be found. Shelter then piloted, in four households, the Defence Research and Development Organisation (DRDO) bio-digester culture which works in an anaerobic environment, procured from Banka BioLoo; with their guidance, the first two biodigester toilets were installed in late-March 2014 and the remaining two early-May 2014.

The beneficiary families received a pamphlet with instructions regarding proper use and maintenance of the toilets. Our observations show that the individual families are following the instructions carefully, especially since any problems arising from misuse would adversely impact their families. The results thus far are encouraging - there are no foul smells emanating from the liquid that overflows from the tank into the open gutters and regular water testing reports that the quality of water coming out of the tank is safe. Additionally, the slightly higher cost of this technology compared to regular toilets does not come without a benefit; while these toilets are a decentralised, treat-at-source waste disposal option for areas lacking proper sewerage infrastructure, the water formed as a by-product of the bio-digester culture can be used on arable land and for other secondary purposes.

An individual bio-digester toilet within a home



Children standing in front of their new bio-digester toilet



As Shelter continues to monitor the dispelled water (every three months), we hope to scale up the piloting of individual bio-digester toilets to more households within infrastructure limited areas of Sangli-Miraj.