

# Rural Sanitation in India

## Toilet models evaluated

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# AC sheet models



Heading	Information
Where built	25 of these types built in Gundagurti village in Gulbarga district by Government funded agency.
Description	These toilets are built using asbestos sheets for walls, doors and roof. They have single pit absorption pit.
Cost	Super structure costs approx. Rs. 4,000 . The construction of pits around Rs.2,000 making it a total of Rs.6,000
Pros	Simple structure. Quick to procure the material and assemble. Low cost of the entire unit.
Cons	Very poor durability. The structures were damaged due to winds, children throwing stones, blown away roof etc. Absorption pit was not accepted well. In addition, integrating the bottom and top portion did not go well.
Recommendation	No go. It is a waste of money to build such models in villages.

# Single pit models



Heading	Information
Where built	10 of these types built in Ranjol village in Gulbarga district by an agency partly funded by Infosys.
Description	Uses brick or cement blocks for construction of walls. No plaster was done most places. Single pit septic tank were dug for waste management.
Cost	Total cost was approx. Rs.10,000
Pros	Simple structure. Relatively quick to construct.
Cons	Super structure is acceptable though concerns exists on lack of good foundation. Single pit was not accepted by public at all. These units have remained unused after construction. Very high chances of pit collapsing and non absorption when built in area of black cotton soil.
Recommendation	NO GO. Do not recommend single pit structure at all.

# Master Plannery Models



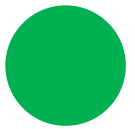
Heading	Information
Where built	Gulbarga city. A sample model put at a college and connected to sewer system.
Description	Pre cast one inch concrete panels were assembled at the site. Currently these panels are made by a company "Master Plannery" based at Puttur in South Canara district of Karnataka.
Cost	Total cost was approx. Rs.18,000 for the single pit model.
Pros	Very quick to assemble. No need of water for curing. Standard quality of the material. Looks elegant and durable under normal wear and tear.
Cons	The single pit septic tank was not accepted. In addition, the cost of putting a precast plant is approx Rs. 2 Crores for making molds and starting the production. Also cost is 20% higher than the equivalent brick and mortar model when going with two compartment septic tank.
Recommendation	HOLD. Acceptable only if model with two compartment septic tank costs less than the traditional model.

# Blue-sky Toilet



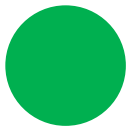
Heading	Information
Where built	A school near Gulbarga city. Under construction.
Description	Brick and mortar walls constructed in a new design. Has pit. Expects no water usage. Recommended to put leaves or carbon ash after every usage. Has two compartments built for alternate use every eighteen months.
Cost	Total cost was approx. Rs.18,000 for the single pit model.
Pros	Great when paper is used. Very suitable for dry areas and when fitted with western toilets. Very eco friendly as it does not require water at all.
Cons	Use of paper not accepted in rural areas. In addition, concerns of concentrated smell affects the usability of the toilet. People's acceptance and discipline to put carbon ash or leaves after every usage questionable.
Recommendation	HOLD. No go for now until proven to work well.

# Septic Tank Traditional model



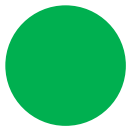
Heading	Information
Where built	25 built in Sugur village in Gulbarga district. Also in 1,500+ houses constructed under flood relief, such toilets were built.
Description	Brick and mortar toilet building. Has a two pit plastered septic tank. This is common model used in all places that do not have underground drainage system.
Cost	Per unit basic cost is Rs.18,000
Pros	Highly durable. Lasts 25 to 30 years or even more. Proven model. Systems exists where sludge is taken out and poured away.
Cons	Higher amount of labour and material usage. Manual work of building toilet one by one. Comparatively costs 80% higher than low cost models.
Recommendation	GO, until a less expensive, better in quality and faster to construct model is worked out.

# Traditional multi unit model



Heading	Information
Where built	Built in most of the flood relief construction sites at Infosys. Units of 2 or 4 are built.
Description	Brick and mortar toilet building. Has a two pit plastered septic tank for each toilet. Alternatively has single pit larger septic tank for multiple families. Ideal for families living next to each other and having good understanding.
Cost	Total cost was Rs.18,000 each unit. Cost comes down by Rs.4,000 for each additional unit added to same septic tank. A 2 unit model will cost Rs.32,000 and a 4 unit one costs Rs. 60,000.
Pros	Highly durable. Lasts 25 to 30 years or even more. A permanent solution.
Cons	Higher amount of labour and material usage. Must have good understanding to maintain the septic tank when full.
Recommendation	GO based on public preference to have a multi unit built.

# Advanced multi unit model



Heading	Information
Where built	Beedi workers coloney in Bangalore by CDD BORDAS
Description	The super structure is a Brick and mortar building. The septic tank starts with a biogas plant. Then the waste is routed to a multi chamber septic tank. The volume keeps getting reduces as the waste is disseminated. Finally the water remaining is routed to a planted gravel filter feeding to plants. Built with German technology and successfully running where built.
Cost	Costs approx. Rs. 3 Lakhs for a 10 unit model.
Pros	Highly durable. Lasts 25 to 30 years or even more. A permanent solution. Produces biogas. Least environmental impact.
Cons	Higher cost. Maintenance needed.
Recommendation	GO when building public toilets. Not in the scope of individual toilets.