

Madanpur Khadar showing the way for making a safe septic tank: Sharing the experience of Ganesh

Rajnagar, Madanpur Khadar Phase III is a resettlement colony on the outskirts of southeast Delhi; the residents shifted there 15 years ago when they were given small plots on which they could build their houses. Most households built multi-storey houses with toilets inside, and septic tanks inside the home as well, since there is no space outside the houses to construct them. The population is a mix of mostly skilled male laborers and largely unskilled female laborers from Uttar Pradesh, Bihar, and Rajasthan.



During a Community Management Committee meeting in Rajnagar, we—a team comprising of field staff and technical staff of CFAR—met Phoolvati, originally from Uttar Pradesh, who told us that her family was currently building a house, including a toilet connected to a septic tank. Her husband, Ganesh, also from Uttar Pradesh, is a mason with over 17 years of experience. They have four daughters and have been living in the area for the past 15 years. Phoolvati had been a CMC member for three months. She took us to the house construction site, where we met Ganesh.

We discussed the plans for the septic tank construction with Ganesh. He was motivated to build a septic tank with a partition, because his neighbor had built a septic tank without a partition and now there was a very bad smell coming from the open drain in the morning, which disturbed everyone in the surroundings. He was familiar with the partition design and had built such tanks in the past. He understood the mechanism of the partition and that it enabled the solid material to settle in the first chamber, so that only the liquid part of the septage went out of the tank.

When the workers started excavating the septic tank site, they discovered that the groundwater level was very high, just two feet below the surface. They consequently decided to raise the foundation of the house three feet above the ground level, to avoid this issue. The septic tank was supposed



to be four feet deep, so they excavated an area of 5 by 10 feet, two feet deep (the rest would be built above the ground level).

There was a lot of water coming up to the surface when they finished the excavation. To address this, they poured gravel into the excavated area and then covered it with a concrete-cement mixture.



Then, they laid bricks so that a 9-inch thick wall was formed on all sides. When it came to the placement of the pipes in the septic tank, there was a little confusion. Ganesh followed most of the typical specifications – for example, the outlet was lower than the inlet and around a foot below the top of the tank. However, he was thinking of placing the outlet pipe very close to the partition, rather than further to the side, because this was where the stairs to the house entrance would be built. We encouraged him to shift it a few inches away from the partition wall. He agreed to this and later avoided the issue with the stairs by adding in an elbow pipe. A desludging pipe was also added in the first chamber of the tank.



After the septic tank walls were constructed, groundwater again came up and entered the tank, so the workers added another layer of gravel and then the concrete-cement mixture. Then, we discussed the partition specifications. Afterwards, they plastered



the tank and put the first row of bricks marking the partition location.

Then came another point of confusion; Ganesh wanted to make three holes in the partition wall – two in the upper half and one at the bottom. He was concerned about how to desludge the second chamber and thought that putting a hole at the bottom of the partition wall would allow that chamber to be desludged. We explained that this would actually allow feces to go into the second chamber and out of the tank, thus rendering the partition wall useless. As an alternative, we said that the desludging pipe near the partition wall could be used to desludge both chambers.

Ganesh understood the point about the feces entering the second chamber and decided to put all the holes in the upper part.

However, before building the partition, the workers laid a frame of wooden planks and iron rods on top of the tank and poured the concrete-cement mix on top, forming the tank cover. They left a 2 by 2 foot manhole cover hole open. Ganesh explained that later, a worker would get into the tank, remove the wooden planks, and finish building the partition wall.



A couple weeks passed by with no progress on the septic tank. Ganesh was focused on building other parts of his house. In the meantime, people visited the site and heard he was building a septic tank with a partition. One person in particular, Sunil, was inspired by this and actually finished his own septic tank with a partition before Ganesh did. Ganesh talked to house owners and masons in his lane who were building septic tanks and explained why they should build a septic tank with a partition and how to do it.

Finally, about three weeks after the work on the septic tank had started, the partition wall was built. Ganesh had a mix of pieces of 3-inch and 4-inch pipe available, so he put three 3-inch holes and 1 4-inch hole two-thirds of the way up from the ground to the top of the partition.



The following day, a meeting was held with men in the community to discuss the septic tank issue and the possibility of forming a male forum. Ganesh talked about why he had built a septic tank with a partition and the design he had followed. Sunil also explained his tank design and how Ganesh's example had motivated him to make a proper septic tank. The men agreed that



using the partition was a good idea and talked about how there was a bad smell in the morning in their lanes because of feces coming out from the septic tanks into the open drains. A few men said they were planning to build toilets and/or septic tanks soon and would use the partition model. Ganesh and Sunil told the men that they could contact either of them in case they need any guidance on proper septic tank construction.