

## Flood-Resistant Ecological Sanitation Takes Off in a Rural Community

Project name:	Sustainable sanitation pilot project (under the framework project Enhanced Sustainable Sanitation Provision in Flooded Areas of India)
Location:	Burmi Tola hamlet, Rupauliya village, West Champaran District, Bihar, India
Partner:	Water, Sanitation and Hygiene Institute (WASHi), India
Funder:	Swedish International Development Cooperation Agency (Sida)

### Key features:

- Flood-resistant ecological sanitation toilets installed collaboratively with households
- A community member acted as a focal point and mobilizer for the pilot
- Demonstration visits sparked interest among neighbouring communities

### Background

Open defecation is common practice in many rural communities in India. This practice creates serious health risks and environmental impacts, which can be particularly severe in flood-prone areas. A recent project in Burmi Tola, a small hamlet in Bihar State, worked with the residents to develop and install flood-resistant household ecological sanitation systems allowing the safe reuse of excreta as agricultural fertilizers, in an effort to make their community an “open defecation-free” zone. The project also promoted improved hygiene habits and addressed gender-specific sanitation and hygiene issues.

This pilot project was initially funded under a Sida-financed action-research project in Bihar being implemented collaboratively by the Stockholm Environment Institute, and Water, Sanitation and Hygiene Institute (WASHi), India. The local implementation partner was the local non-governmental organization Water Action.

### Burmi Tola

Burmi Tola is a hamlet attached to the village of Rupauliya in West Champaran District. Its 217 residents are mostly small-scale farmers, working in the nearby fields. Burmi Tola has problems typical of many communities in the area: water shortages for much of the year, but flash flooding during the monsoon – usually three or four events a year. During floods, the water level can reach 30-60 cm in the village and even higher in the surrounding fields, and the land can be waterlogged for up to three months. While residents practised open defecation in the fields for most of the year, during and after flooding they were forced to use a nearby raised feeder road. Only one household had a toilet facility before the project, which was a soak pit latrine.

### Introducing ecosan to the community

The residents of Burmi Tola agreed to participate in the project after initial sensitization activities carried out by Water Action. The villagers were particularly keen on the project’s aim of developing toilet designs that could withstand flooding without



Burmi Tola hamlet

overflowing or breaking, unlike pit latrines. The project also put special emphasis on women’s and girls’ needs during menstruation. Menstruation hygiene management (MHM) is an aspect of sanitation that usually receives little support in India, particularly in remote rural communities.

Once the project started, Water Action held further presentations and workshops on the health and environmental risks associated with open defecation, the benefits of good sanitation and hygiene practices and productive reuse of excreta, and the principles and practice of ecological sanitation.

### Installation

As the pilot project progressed, toilet units were installed for 31 of the 37 households in Burmi Tola, along with 7 other households in Rupauliya. Some families could not participate as they did not have sufficient land.

The urine-diverting dry toilet (UDDT) model was chosen jointly by the households. It is a raised squatting model with three openings, allowing anal-cleansing water to be drained separately. The substructure has two separate chambers for collection of faeces, with a platform approximately 0.9 metres above ground. The size of the chambers in each facility was determined by estimating how much faeces would be produced in six months. Urine is collected in free-standing jerry cans connected to the urine bowl with a short hose. Greywater is treated in a soak pit.

Responsibility for constructing the toilets was shared between the project and the households. This was considered cost-effective; it also made sure households were committed before



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Raised, waterproofed substructures were built with project support (top). Households added their own superstructures (bottom).

installation began and helped to develop a sense of ownership. The project supported the construction of the waterproofed substructure, while the households were responsible for preparing the plinth, providing sand for construction, building the superstructure and providing other labour as needed. They also fed and accommodated local masons who were trained to make the substructure.

Households were free to build the superstructure according to their own preferences and means. Most used traditional materials such as bamboo and straw, some intending to upgrade to brick walls when they could afford it. A few families built with bricks directly.

### Gradually building acceptance

Water Action encountered strong resistance from some community members even once the installations had started. For example, some called for more “aspirational” waterborne toilets instead of the ecosan systems, and were repulsed by the idea of handling human excreta. Some also argued that the shared responsibility for installations was asking too much of poor households (even though they were not required to make any cash investment). A number of elderly and male residents said they would prefer to continue open defecation.

Installation only started once a household had committed to take on its share of the responsibility. This proceeded slowly at first. However, momentum built up once villagers had seen finished systems. In addition, a few residents held their own informal agricultural trials on their kitchen gardens, fertilizing

some plots with treated urine and others with commercial chemical fertilizers and then comparing the yields. This allowed undecided villagers to see effectiveness of “humanure”.

One Burmi Tola resident, Vinita Kumari, has played a pivotal role in the project, carrying out surveys, helping to design the toilet substructure, and acting as a voluntary focal point and “mobilizer” in the community. Her work helped in overcoming residents’ doubts, building their capacity and helping to inspire interest in nearby communities.

The project received another important boost thanks to the interest of the district magistrate for West Champaran, Mr C. Sridhar, who invited respected agricultural expert Mr Chintan Raj to visit Burmi Tola. During this visit, Mr Raj praised the villagers who had been reusing urine, convincing others to follow their example. The small privately owned primary school in the hamlet also started harvesting urine for use on a small cultivation area.

### Achievements and lessons

Women and girls seem to have benefitted the most from the project. Open defecation and urination posed particular difficulties for them, and many had previously tried to minimize the need to defecate and urinate by drinking and eating less. The privacy of the toilet facilities also allows better MHM.

The villagers have reported a positive impact on health since the start of the project, with fewer cases of sickness and less money spent on medicine.

Three factors seemed to have been particularly important in overcoming resistance: the active involvement of a community member, the support of influential figures, and the gradual approach allowing villagers to see the systems and the benefits of ecosan at first hand.

Following contacts with local government institutions, including the Public Health Engineering Department, the Agricultural Department and agricultural extension workers, around 150 farmers from nearby communities were invited to visit the project. Around 55 households in neighbouring communities have expressed a wish to install ecosan facilities.

#### For further information

To learn more about the SEI-WASHi collaboration visit <http://www.sei-international.org/projects?prid=2070> or contact:

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