



# Country Water Action: San Fernando's Dry Alternative

Three years ago, residents of coastal and upland villages in San Fernando City polluted their drinking water with their own excreta. Today, they take pains to practice safe hygiene and sanitation.



"I talk about health and cleanliness but I do not have a toilet myself", laments Vivian Casuga, a community health worker in the coastal barangay (village) of San Agustin in San Fernando City, the capital town of La Union province. Hers is one of 426 households competing for the use of the village's 3 communal toilets.

More than 500 people line up to use each of these toilets everyday. Water is scarce and few users care to keep the toilet clean. At the end of a long queue, people are rewarded with a dirty, stinky, and germ-infested facility. "I tell my kids to just relieve themselves at the alley beside our house", says Vivian. "It's unsanitary, but what choice do we have"?

The lack of toilets in San Agustin dictates people's behavior in many ways, they cook only easily digestible food to avoid indigestion; they rarely entertain for fear that visitors may need to use a toilet during the visit; they delay urinating and bowel movement; and they contend with diarrhea and gastroenteritis on a daily basis.

All these changed when Barangay San Agustin became a pilot area for the city's ecological sanitation (ecosan) project.

## The dry alternative

In 2003, then San Fernando Mayor Mary Jane C. Ortega was searching for an answer to her city's sanitation problems when she stumbled upon the ecosan program of the Center for Advanced Philippine Studies (CAPS). The program promotes urine-diverting dehydration toilets (UDDT) that use ash to flush excreta. Water is not at all needed for flushing.

The system is simple. Urine is separated from feces through the UDDT, which is built atop a substructure that houses 2 half-drum containers lined with plastic bags for urine and feces. These containers are stored for a period of time to allow pathogen die-off before they are collected and converted into soil conditioner or fertilizer. Retention time (dehydration and pathogen destruction) for fecal material is between 6-12 months while urine can be stored for 30 days before being applied as fertilizer.

The system protects human health, saves water, prevents water pollution, and reuses nutrients in human excreta (closing the loop).

"I knew San Fernando had to try this", says Mayor Ortega.

In February 2004, she asked CAPS to introduce the concept to the city government. By August 2004, the city government, CAPS, and 3 other local nongovernment organizations had formed a partnership to mainstream ecological sanitation in the city. The city government budgeted PhP 1 million (US\$20,000) for constructing the toilet facilities. Additional funds came from the Dutch government to cover research, capacity development, and public awareness activities.

Two villages were selected as pilot sites, Barangay San Agustin (coastal) and Barangay Nagyubuyuban (upland).

## Stumbling blocks

San Fernando is one of the biggest urban centers in Northern Luzon. Its 118,000 inhabitants, housed in 24 urban and 35 rural barangays, are joined by roughly 50,000 transient groups of students, workers, and businesspeople daily.

The city's sanitation headaches cover 3 interrelated issues, the lack of toilet facilities in poor coastal and upland barangays, water scarcity and groundwater contamination.

Roughly 10% of the city's population lives with 3 ugly sanitation choices: sanitary/open pits, communal toilets, and open defecation. The pits are unlined and the toilets poorly maintained due to lack of water for flushing, making them active sources of diseases and water pollution. Water scarcity has led to excessive groundwater extraction, causing liquid wastes from nearby septic tanks to contaminate the groundwater. In fact, a 2004 survey by the city health office revealed that 56 out of 59 city wells tested positive for fecal coliform. Immediately after, chlorine pills were applied monthly on all wells, costing the city government P500,000 annually until a cheaper alternative was found.

Despite the city's glaring need for toilets, the partners knew that skepticism will be the project's first stumbling block. Ecosan was almost unheard of in the Philippines in 2004, and the dry technology of the UDDT made locals feel as if wool is being pulled over their eyes. To dispel these worries, the consortium conducted extensive consultations with city officials and residents, paying particular attention to the concerns of the pilot sites.

Simultaneous with the consultations were the gathering of baseline data on the city's sanitation systems and practices, planning of project details, and conduct of ecosan capacity development workshops at the city, barangay, and household levels. A small ceramic maker was also contracted to design and build the ceramic UDDTs to be installed in the ecosan toilets.

## Sanitation about-face

The project in the pilot sites began with the selection of a volunteer household that will use the dry toilet for 3 months.

When Vivian Casuga heard about this, she lost no time in volunteering and attending orientation workshops. She taught her family how to use the toilet and observed like a hawk if they were maintaining it properly. But after the first flush of excitement at getting her very own toilet, Vivian started worrying. "Will the containers of urine and feces overflow"? "Will the barangay pick up the bags of waste"? "Will the ash be enough"? "Can the neighbors smell bad odor from the toilet"? "How will the vegetables fertilized from excreta taste"?

Vivian needn't have worried. Her family easily got into the routine of using and maintaining the dry toilet; her neighbors didn't complain about odors; and the vegetables fertilized by human excreta tasted the same as the ones she had before. Too, the barangay government supplied her with ash, a good bulking agent for controlling odor and dehydration, and picked up the bags of waste as scheduled.

Beyond these conveniences are the bigger changes in Vivian's lifestyle. Visitors are no longer a source of worry, dietary restrictions were thrown out the window, defecation in alleyways has become taboo, and the long wait to use the toilet was a thing of the past.

After the 3-month trial period, people forgot their worries. Applications for ecosan toilets began pouring in from the residents of the pilot barangays, despite the fact that they had to shoulder a hefty counterpart. The city government put up the substructure at roughly P4,500 each (labor and materials) but the households shouldered the cost of the UDDT bowl and the walls and roofs of their ecosan toilets. In 2005, UDDT bowls cost P500 each; this increased to P995 in 2007. The cost of the walls and roof varied depending on style and materials but households generally spent P5,000 - 10,000 for these.

## Mainstreaming Ecosan

By close of 2007, the project has expanded. Within San Fernando City, 358 units of ecosan toilets are now giving comfort to the residents. Beyond the 250 households in the pilot barangays, the city constructed dry toilets in 3 elementary schools, in the 20-hectare La Union Provincial Botanical Garden (a major user of the fertilizer produced from the dry toilet's refuse), in the Fisherman's Village (a resettlement housing project for 95 fisher folk families), in several nursery sites, and in a Marine Sanctuary Watch Tower by the San Fernando Bay. Two other towns in the province have also replicated the project.

The households in the pilot barangays show improved sanitation and hygiene practices. What's more, peri-urban communities practice urban agriculture; planting tomatoes, bitter melon, water melon, eggplant and a host of other vegetables with the help of the ecosan fertilizer.

Sanitation has also taken center stage in San Fernando's development agenda. In 2006, the city updated its Sanitation Code and passed its Sanitation Strategic Plan, which calls for the construction of another 1,000 ecosan toilets by 2010, among other things.

## Holding a steady course

All is not roses for the ecosan project, though. Skepticism about the approach is ever-present so the need to build awareness is constant. Likewise, an appropriate UDDT design for the handicapped still has to be made; a sustainable source of ash has to be developed; and the design of toilet sub-structures in flood-prone areas has to be improved to ensure that the system is not compromised by floods.

But the pilot project has shown that ecosan works, and its champions ensure that gains are spread. "Political will has and continues to carry ecosan throughout the province", says CAPS Executive Director Dan Lapid, referring to the staunch support of then Mayor Mary Jane Ortega and present Mayor Pablo Ortega for ecosan.

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