

VIABLE ALTERNATIVE

Simple, low-technology solutions to sanitation problems offer communities affordable and manageable means to improve their quality of life and environment

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THIMI, KATHMANDU

Less than a 30-minute drive outside Kathmandu, life in the town of Madhyapur Thimi unfolds in scenes more common to another century.

On this particular evening, a group of elderly residents sit outside the Bisnubir temple offering incense, their chants, strings, and flutes to usher in dusk. A bare-foot couple works a small corner plot of land with hand tillers. People stoke small fires inside their centuries' old homes and light candles outside. Women huddle together, hunched over, bundling grain, hay, and vegetables for the night delivery to a Kathmandu market. Women draw water from a well.

To the unfamiliar visitor, life in Thimi is idyllic. But one look down Thimi's main river shows something is not right.

"When I was a young boy, I used to swim and bathe in that river," says Madan Krishna Shrestha, former mayor of Thimi. "Then the donor groups came and sanitation systems came. But when one of the treatment plants broke down, almost suddenly, the river got dirty."

One by one other plants fell into disrepair until they stopped functioning altogether. Sewage is now dumped untreated into streams, and it is happening in the whole of Kathmandu and the surrounding towns.

Up for the Challenge

What has happened to Thimi's river is now happening to water resources across the world. They are carrying loads nature never intended for them—tons of silt from erosion, industrial pollutants, agricultural chemicals, and untreated sewage.

Improving sanitation and wastewater treatment systems is one of many interventions that can help save natural resources while improving people's immediate environment. Almost half of the people living in Asia and the Pacific do not have access to improved sanitation. Target 10 of the Millennium Development Goals calls for this number to be halved by 2015.

The Environment and Public Health Organization (ENPHO) in Nepal is trying to revolutionize the way municipal governments approach their water pollution problems.

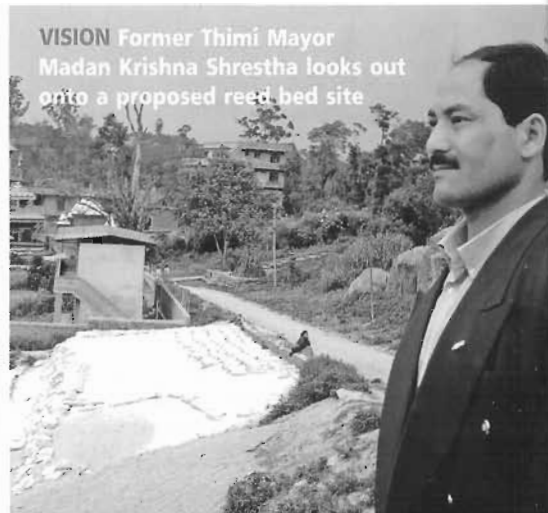
For years, ENPHO has watched local governments struggle with the financial and technical capacities to manage the more modern and sophisticated sanitation and wastewater treatment systems that donor money has bought them. As an alternative and wherever feasible, ENPHO works with communities and local governments to adopt low-technology solutions. The logic: keeping systems simple keeps them affordable and manageable—the two keys to sustainability.

ENPHO concentrates on two modalities to improve sanitation and wastewater treatment.

Ecosan toilets are stand-alone units for individual households. Unlike typical toilets, the Ecosan toilet does not use water to flush waste down and through a system. As a dry toilet, Ecosan involves two compartments below the unit to collect and store the liquid and solid wastes separately. Once a year, users should empty the compartments and use the waste as organic fertilizer for backyard gardens.

The other mode is the reed bed treatment system. A system of reed beds constructed near a town's sewer outlet captures untreated waste and treats it through a natural breakdown process before it enters streams and rivers. The system mimics processes found in natural wetland eco-

VISION Former Thimi Mayor Madan Krishna Shrestha looks out onto a proposed reed bed site



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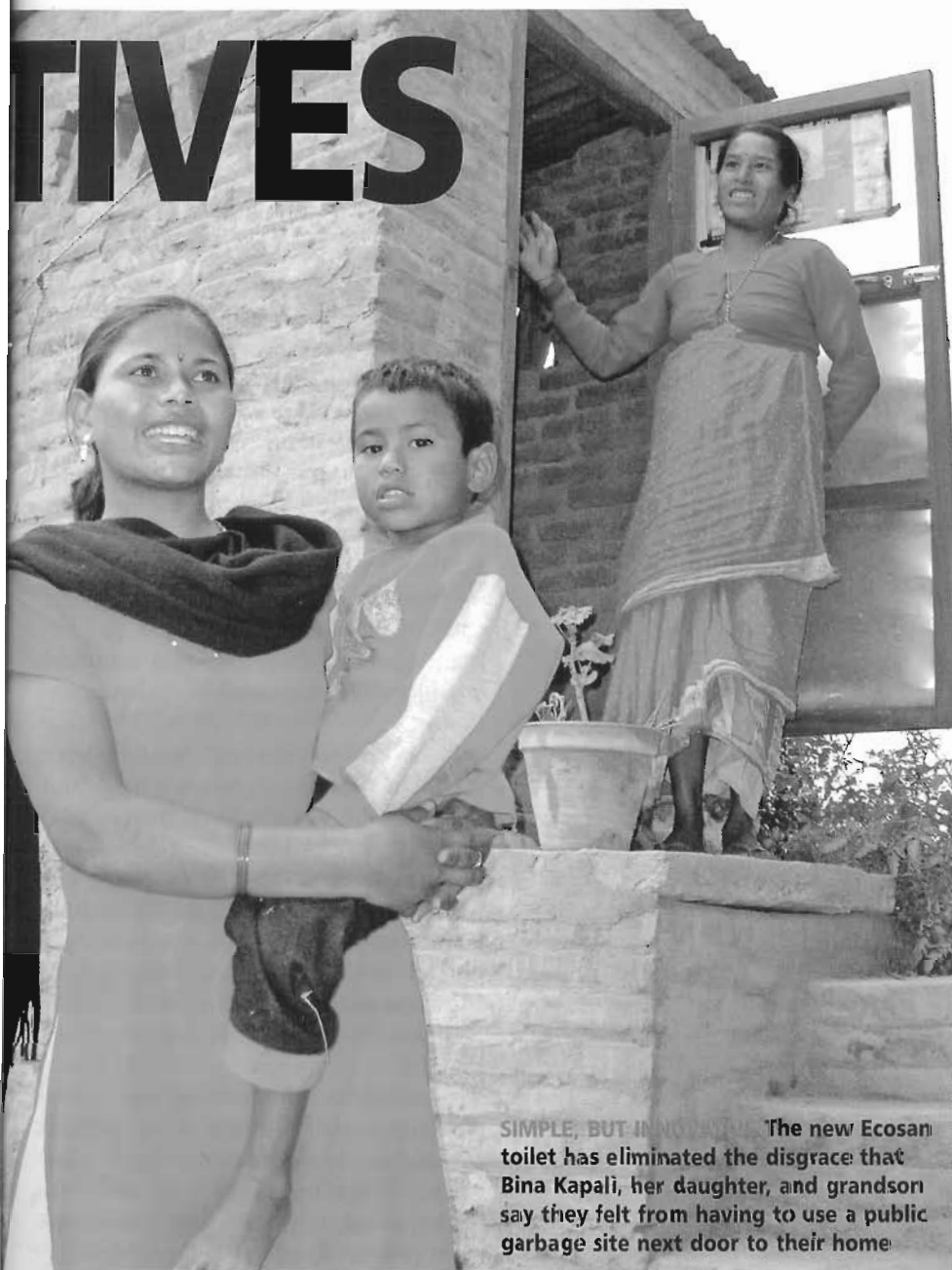
systems. ENPHO says the systems are simple, robust, effective, and low-cost.

Low Caste, High Priority

ENPHO's market for Ecosan projects is mostly low-caste households where there are no flush toilets. Bina Kapali, 45, had to resort to humiliating practices before receiving an Ecosan unit from ENPHO. She used the lot next to her house—the town garbage dump, where dogs and pigs trod and scavenge for food scraps.

"When we used to have to go there—at that dump site—I would sit there, hidden, and think, 'What if somebody comes, especially a man?' If only I had a toilet, I would not be doing this here," Ms. Kapali says.

TIVES



SIMPLE, BUT IT WORKS The new Ecosan toilet has eliminated the disgrace that Bina Kapali, her daughter, and grandson say they felt from having to use a public garbage site next door to their home

Melissa Howell Alpalo (x2)

Since receiving an Ecosan unit, "I have never gone back to the dump site," she says.

Unlike what is encouraged of users, she has never recycled the waste from the Ecosan storage units for fertilizer. "I cannot," she says. "These flowers are for the gods. I don't want to throw urine on them."

"There will always be cultural factors that even the best technology can't get around," says Roshan Raj Shrestha, founder and former director of ENPHO and now Chief Technical Director for the United Nations Human Settlements Programme's Water for Asian Cities Program. "We have to do a lot of work on social acceptance. In the rural farming areas, everybody uses cow dung. They love it.

But attach the same idea to a toilet and nobody wants it."

By the end of 2005, ENPHO estimates it will have installed more than 150 Ecosan units in low-caste households in the Kathmandu valley.

But the market for Ecosan in the Kathmandu valley is limited. "It's too late for Ecosan in Thimi," Mr. R. R. Shrestha says. The infrastructure for a sewage system is already in place and 90% of homes have flush toilets. The greater problem is in treating the wastewater. This is where reed beds offer nature's low-cost, low-maintenance, sustainable solution.

Getting people to buy the idea, however, is a project in itself.

"Whether it's Nepal or the United States, nobody likes the idea of a sewer plant in the area. 'Not in my backyard,' as the saying goes," Mr. M. K. Shrestha says.

To help overcome the skepticism, ADB gave ENPHO a \$50,000 grant from its Pilot and Demonstration Activities program of the Cooperation Fund for the Water Sector to steer the reed bed system and use it as a demonstration site for other communities to see.

Pick a Problem, Any Problem

The start-up money went only so far before ENPHO faced trouble on every other front. In early 2005, when ENPHO needed political support to convince the community to accept the project, the king dissolved all elected officials.

In other political corners, Mr. R. R. Shrestha says ENPHO was pressured to use some of the grant money to construct a building for a separate organization in the project area. "When we refused, all sorts of problems started. And then the project fell through. We tried community mobilization. We went door-to-door. Nothing worked," he says.

Eventually, ENPHO turned their plans toward a different site in Thimi. "Since 90% of the people in Thimi are Newari, it was easier to convince them. They are mostly one caste. It's a homogenous place and consensus is easier," says Mr. M. K. Shrestha, the former mayor.

In a strategic move, ENPHO first gained the support of the worshippers at the Bisnubir temple, whose influence went far. Local volunteer labor has since built the reed bed system in just a few months, finishing in October 2005.

Local officials believe this could be the start of a municipal-wide scheme. "This is a small town," a deputy mayor says. "This kind of system is manageable and can be a model."

To bring 100% treatment to Thimi and plug a major pollution source, officials estimate that it would take just eight more reed beds, at a cost of less than \$25,000 each, and only a few months to implement each one. ■

To submit a proposal for the Pilot and Demonstration Activities, visit www.adb.org/water