

## Livestock Waste in the Philippines: Cleaning the Sty

**B**ackyard hog and poultry production is an important source of livelihood in the Philippines. However, increases in hog production have created a host of environmental problems. In response, EEPSEA researchers have helped to sow the seeds for a farmer-centered approach to pig-waste clean up.

The three-person research team was led by Ms. Angeles Catelo of the University of the Philippines at Los Banos (UPLB). She and her colleagues conducted an economic assessment of the environmental consequences of pig farming and investigated the costs and benefits of various pollution control options.

Their survey was conducted in Laguna province, which nationally ranks fourth in terms of backyard hog production and third in commercial hog production. In addition to interviewing hog raisers the research team tested water quality and investigated the health impact of foul odors from the pig farms.

Catelo found that even commercial piggeries lacked waste treatment facilities - almost



A commercial hog farm

**“IT WAS CLEAR THAT "THE BATTLE HAS BEEN HALF WON ALREADY" BECAUSE THE LEVEL OF AWARENESS OF THE AUDIENCE, ESPECIALLY THE RAISERS, WAS VISIBLY HEIGHTENED.”**



Farmer with a newly born piglet

all raisers dumped their waste directly into waterways. Most households agreed that this direct dumping of waste had caused rivers and creeks to become polluted and malodorous. Moreover, analysis of waste water from the piggeries showed that it did not pass national standards for acceptable water.

Pig farming was found to increase the occurrence of diseases such as asthma, bronchitis and pneumonia. Other ailments such as diarrhea, and skin allergies were also linked to the piggeries. Catelo estimated the economic cost of these health problems and found it to be significant.

Catelo and her team suggested a number of waste control options. They emphasized the need for reduction at source and also suggested various end-of-pipe treatment options such as the construction of lagoons (for those with available land), installing biogas digesters ('twin-sharing' for backyard raisers that are close to each other) and the construction of an organic fertilizer/pelleting plant.

Completed only in July 2000, the study has already had

considerable impact. This is partly due to an information and education campaign carried out by Catelo and her team to heighten the awareness of air and water pollution and the health effects of improperly managed hog waste. As part of this campaign, the researchers conducted sessions with local government officials - such as barangay captains, the municipal council and the mayor - and hog raisers. They presented the issues and control options and asked which among the options were acceptable. According to Catelo, it was clear that "the battle has been half won already" because the level of awareness of the audience, especially the raisers, was visibly heightened. "They were convinced that something has to be

done now to curb pollution from hog waste," she says. Subsequently, Catelo was approached by a backyard raiser interested in adopting the research team's recommended design for a biogas digester. Her team then helped him plan its installation.

The education campaign also resulted in a lot of positive press coverage, which in turn helped spread the 'clean-up' message among pig breeders. Catelo was also able to lend her

expertise to communities outside the Majayjay project site. "I had a telephone interview with a spokesman for residents in Tarlac (a province in Central Luzon) who have air and water pollution problems from the hog waste of commercial piggeries," she says.

As a result of the education campaign, Catelo was contacted by the Laguna Lake Development Authority (LLDA) - a government agency that is mandated to rehabilitate river systems feeding Laguna Lake. The LLDA was looking for ways to reduce the pollution of these rivers and creeks and was itself targeting hog raisers. They were keenly interested in the list of options that Catelo's team was recommending.

"The LLDA listened to what we had to say and were grateful that we took the initiative to inform the hog raisers about the importance and urgency of doing something with their waste," Catelo explains, adding that the LLDA's community development division used her group's flowchart of options to educate hog raisers about what they could do with their waste. Future collaboration between Catelo's team and the LLDA is likely. 