

PIG POWER



DANIELLE HAYES/UNDP

Havana — At a research institute in the suburbs of Cuba's capital, pigs are pampered with meals prepared by the city's finest chefs. No, this isn't a medical experiment — or a backstage moment with the porcine starlets of *Babe*. It's part of a biodynamic system that cleans up the environment, recycles urban waste, promotes sustainable agriculture and produces fuel for power.

The magic ingredient is pig manure, which, after a natural process of fermentation, turns into a rich fertilizer and enough natural gas to fire up stoves in neighbouring homes and the Pig Research Institute's central kitchen. In fact, the by-products are so potent that the institute's six hectares of land has potential annual yields of 16 tonnes of pork, 20 tonnes of fish, 40 tonnes of rice, three tonnes of duck meat, 14,000 quarts of milk, 70,000 eggs, a half a tonne of honey, and oranges, lemons and grapefruits from 14,000 trees.

Key to the entire system is feeding the pigs a healthy diet at low cost. "Pigs are usually fed with grain," says Miguel Perez Valdivia, mastermind of the Nonconventional Feeding of Pigs Project,

which was launched five years ago with support from UNDP. "But since Cuba has no grain, and it costs US\$300 a tonne to import, we had to find other means."

Pigs may be highly intelligent, but they are not fussy eaters. Accordingly, Valdivia arranges daily pick-ups of refuse from Havana's largest restaurants, slaughterhouses and fish processing plants, grinds it altogether and cooks it to 120 degrees Centigrade in a device he created called the thermal destructor. The result: a hearty meal for pigs that

The budget for the UN's core functions—the Secretariat's operations in New York, Geneva, Nairobi, Vienna and five regional commissions—amounts to US\$1.3 billion a year. This is equal to only about 4 per cent of New York City's annual budget or slightly more than half of the yearly budget for Tokyo's Fire Department.*

costs far less than a grain-only diet — only \$19 a tonne. The institute's pigs will reach 100 kilos in six months, the same as grain-fed pigs but at a savings of \$150 a day.

The system works like this: each day pig manure is collected in a tank or long plastic tube known as a biogas digester. As the material decomposes, harmful bacteria are eliminated and an odourless liquid, solid and gas are produced.

The liquid is fed into ponds where high-protein algae is grown. The algae is part of the pig formula as well as a food for ducks and four species of fish. The solid matter is used to feed worms, which in turn are fed to hens. It is also used as an organic fertilizer for thousands of fruit trees, a

vegetable garden and two yearly crops of rice. The methane gas is funneled into the institute's and neighbourhood kitchens.

Biogas digesters are also being tested out in rural areas. In one household outside Havana, "bio-digested" waste from three cows is providing fuel for the family's stove and an abundance of fertilizer. In 1996 alone, the institute is set to build 300 similar systems in isolated farming communities throughout the country.

The idea is catching on. The deluxe system — thermal destructor plus biogas digester — has already been sold to a pig farm in Mazatlan, Mexico, and the Brazilian city of Porto Alegre is bidding on three more.

Lunch anyone? ■
— Danielle Hayes