Enemy at the gate

Saving farms and people from bird flu
Impact figures for the avian influenza epidemic are staggering even for a continent the size of Asia. More than 140 million birds have died or been destroyed. Combined losses to Gross Domestic Product (GDP) are estimated at US$10 billion to US$15 billion. As of early 2005, forty-two people have died of the flu. An FAO study estimates that in Viet Nam alone, the disease has touched 36,000 people living on the edge of poverty and 88,000 who were already poor.

Ten countries are affected: Cambodia, China, Indonesia, Japan, the Lao People’s Democratic Republic, the Republic of Korea, Malaysia, Pakistan, Thailand and Viet Nam.

“Avian influenza is much more dangerous than other poultry diseases,” says Dr Nguyen Duy Long, Director of Long An Animal Health Sub-department, Viet Nam. “It takes more time to identify than other diseases. The economic losses are huge, much larger than with other diseases. It cost us 200 billion dong (US$12 million) last year in this province alone.”

Over this bleak landscape sits a black cloud of fear that the virus might become adapted to enable human-to-human transmission and then spread around the globe.

“The threat to human health will persist as long as the problem persists in animals,” says Dr Peter Horby, a public health expert with the World Health Organization (WHO) in Hanoi, who works closely with FAO in the fight against bird flu in Viet Nam. “There are other diseases that cross from animals to humans, but bird flu is the most pressing issue. It is clearly an endemic problem and a definite risk to humans.”

In the following pages, those hit by and those hitting back at avian flu describe in their own words their hardships and struggles, but also what is working against the epidemic.
Saving farms and people from bird flu

Since its founding in 1945, FAO has built up its expertise and reputation as a world leader on animal health and production. In trans-boundary animal diseases, the Organization was providing leadership and technical expertise as far back as 1954, when foot-and-mouth disease ravaged post-war Europe.

In the avian influenza crisis that began in Asia in late 2003, FAO’s roles are many: technical assistance, policy advice, provision of laboratory equipment, protective clothing and training, agency and donor coordination, contingency planning, technical information and guidelines, and public advocacy. The Organization works hand-in-hand with the OIE and, because of the threat to human health, with the WHO as well (see Three agencies are better than one, page 9).

Many donors channel their money for emergency response through FAO because it can coordinate actions among affected countries as well as among donors. Good coordination reduces the risk of duplicate purchases of goods and services in any given country – a possibility if funding comes from multiple sources.

Appropriate, timely help
“FAO and OIE sent experts at the beginning of the outbreak to help us draw up an emergency plan,” recalls Dr Bui Quang Anh, Director-General of the Department of Animal Health, Viet Nam. “We had never had this problem before.”

Dr Anh said he benefited from an FAO avian flu study trip to the Netherlands in 2003, after the disease had broken out in that country but before it erupted in Viet Nam.

“FAO plays a key role for my country. Its technical advice was very helpful, for example, in diagnosis, surveillance, choosing experts, training and so on,” says Dr Chaweewan Leowijuk, Deputy Director General of the Department of Livestock Development, Thailand.

Developing countries are used to working with FAO on livestock, a cornerstone of their rural economies. As Dr Tri Satya Putri Naijospos, Director of Animal Health in Indonesia, put it: “FAO is an international organization that deals with animal transboundary diseases on a regional basis. They have all the expertise.”

Or as Dr Carolyn Benigno, one of the veterinarians in FAO’s regional office in Bangkok, says about Asian governments, “When there’s a problem, they know who to contact.”
GIANG TRIEU, Viet Nam - When his backyard chickens refused to eat and looked ill, Nguyen Van Tuyen's first instinct was to kill and cook them.

The small-scale farmer in this village 60 kilometres southwest of Hanoi had heard about avian flu on TV, but thought it just affected poultry, not humans.

One week after his four-year-old grandson Long ate some of the chicken, the little boy came down with a fever. When his temperature hit an alarming 39˚ C, he was taken to a hospital in Hanoi and died 12 days later of respiratory trouble. Long is one of dozens of avian flu victims in Viet Nam, many of them children.

“He had never been ill in his life,” says his mother, Le Thi Yen. “I boiled the chicken as I usually do and all the others felt fine after the meal.”

One of the mysteries of avian flu is how it spreads (see Virus detective work in Indonesia, pages 6-7). After Long’s death, animal health officials could not find the virus in village livestock, so had to assume that the cooked chicken had transmitted the disease. In fact, the WHO says that human consumption of poultry meat and eggs cooked to 70˚ C is safe and that no cases of bird flu infection have been linked to the consumption of properly cooked meat or eggs.

AN LUC LONG, Viet Nam – Phan Thi Ninh and her husband are doing the best they can to better their material situation and educate their four children. But the avian flu emergency threatens them with ruin.

Living in the fertile Mekong Delta, Ms Ninh started her own broiler chicken business to supply nearby Ho Chi Minh City with meat. Her income on 2 200 chickens, together with her husband’s salary from a job with the local government, was enough to send her eldest son to police training school in the city. Then bird flu forced her to cull her flock.

“I owe 30 million dong (US$1 875) to the bank,” she laments. “I am having a hard time keeping the children in school. I have to send my eldest son one million dong (US$62) a month and it’s not easy at all.”

Although she has restocked her coops with 600 birds bought with government compensation, her problem now is that prices for poultry and eggs have virtually collapsed in Viet Nam as consumers, afraid of catching the virus, switch to other meats and fish.
"I keep raising chickens, but I'm not sure I can sell them," she says.

In a neighbouring province, duck farmer Nguyen Van Tam was supporting his wife and two children with a flock of 330 birds until early 2005, when his ducks started acting strangely.

"They suddenly started laying eggs very early and then overnight 100 of them died. I reported it and the authorities came right away," he says, as animal health workers in rubber boots, protective clothing and masks spray his farm with disinfectant. The surviving ducks had to be destroyed and all carcasses burned and buried in his garden.

"Without income from the ducks I'm going to have to go and find farm labour in someone else's paddy field and grow a bit of rice on my small field," he says. "It is going to be tough to afford textbooks for my eldest daughter, who is 15."

“‘I am having a hard time keeping the children in school.’”

Phan Thi Ninh
Farmer hit by bird flu
Viet Nam

CRISIS OF CONFIDENCE
Mr Purwono, 60, lives on a smallholding in Central Java, Indonesia, supporting himself and five family members on the income from some coconut trees, rice paddy and free-range chickens. Despite being confined to a wheelchair, he can still easily get around his chicken coop. The problem is that he lost 370 out of 400 birds to avian flu a year ago.

"It was a very severe loss for me," he says. "I received some compensation from the government but then I borrowed money from relatives, neighbours, the village co-op, even the vet to survive and restart the business."

"I still only have 30 chickens because I am nervous about the situation. I think vaccination only offers 50-percent protection, because there is still some mortality," he says.

Veterinarians visiting Mr Purwono tell him that the new poultry deaths are from causes other than avian flu. But he remains unconvincing.
**VIRUS DETECTIVE WORK IN INDONESIA**

**THE CASE OF THE MYSTERIOUS LIVESTOCK DISEASE**

**YOGYAKARTA, Indonesia** – Troubling news arrived at the Disease Investigation Centre in Central Java one day in August 2003. A poultry buyer had lost 7,000 chickens overnight. Cause: unknown.

“It was unusual because of the speed and the number of dead,” says Centre pathologist Walujo Budi Priyono. He got a chance to investigate the phenomenon soon afterwards when a farmer brought in a sick chicken for diagnosis. When the bird died, he opened it up.

“I found abnormal brain tissue under the microscope,” he recalls. “From my studies I was familiar with avian flu and I started to think it might be that. We isolated the virus and four months later confirmed the disease.”

As the epidemic exploded across Java in early 2004, finding out how the virus spread required quick detective work. Without an understanding of transmission, control strategies couldn’t be tailored to local circumstances.

A team of 15 veterinarians and technicians was marshalled to conduct a survey in villages and markets, searching for the path between one outbreak and the next. Nothing was ruled out from the list of suspected virus carriers: wild birds, ducks, pigs, insects, egg and chicken buyers, commercial feed, vehicles or equipment.

Because infected poultry excrete the virus in high concentrations, suspicion eventually fell on ways the droppings might be tracked from farm to farm, such as on clothing, shoes, egg trays, bird cages or even the tires of motorcycles and trucks.

**INVESTIGATING THE BUYER**

“The buyers could be the main source of spreading the disease. We saw that they went from one farm that had suspected avian flu to another farm and within three days it broke out there,” says Centre Director Dr Isep Sulaiman. “Then, the buyer sold the infected live chickens at market, people took them home and didn’t kill them immediately and it spread even further.”
It was unusual because of the speed and number of dead.

Walujo Budi Priyono
Pathologist
Disease Investigation Centre
Indonesia

JAKARTA, Indonesia – Indonesia, one of only three Asian countries, with China and Pakistan, to vaccinate against bird flu, says it chose to vaccinate its flocks instead of mass culling them because of cost. Java, with 80 percent of the country's livestock, is so crowded that a rigorous culling campaign would have wiped out virtually all the poultry on the island.

After losses totalling at least nine million poultry in early 2004, the results of the vaccination programme are “very promising” with only a few bird flu cases reported in the early 2005 flu season, says Dr Tri Satya Putri Naipospos, Director of Animal Health for Indonesia. Vaccination is used together with selective culling, movement control and other measures.

The country plans to eradicate bird flu by 2007. Veterinarians got off to a flying start, vaccinating 114 million poultry in 2004.

“We understand from the OIE that to have a vaccination programme, you have to have rigorous surveillance of the results. That takes a lot of human resources and a big diagnostic programme to do the lab work,” she says. “We need international assistance in those areas.”

Choosing vaccination as a control strategy is not an easy decision. Vaccination campaigns require a large infrastructure that some countries may not be able to afford. Without using appropriate methods, it can be difficult to distinguish between infected and vaccinated poultry under current Asian conditions, making it difficult to monitor the whereabouts of disease.

For countries that do vaccinate, an important research priority is the development of vaccines that are cheaper and more practical for use in the field.
CONTAINING INFECTION AT SOURCE – SIGNS OF SUCCESS

GOOD FARMING PRACTICES AND IMPROVED HYGIENE ARE WORKING

MY THO, Viet Nam – Control measures strenuously applied against the avian flu epidemic are getting good results in Tien Giang province, one of the most severely hit in the country.

Animal health authorities in the province, in which 165 000 farm families supply nearby Ho Chi Minh City with poultry and eggs, say that only around 100 000 chickens, ducks and quail have died of the flu or been culled in late 2004-early 2005, compared to 1.5 million for the same period a year earlier.

One reason for the dramatic drop in outbreaks and animal death was the improved response capabilities of the veterinary services. Also, individuals have been more conscientious about hygiene and good production practices.

“This year we have been much more active in fighting the epidemic. We react quickly and cull on the spot,” says Dr Nguyen Viet Nga, Director of the Tien Giang Animal Health Sub-department. “We concentrate on education about disinfection and other measures to take, going on television, holding seminars, distributing cassettes and even going to talk about it in schools.”

Dr Nga praised local farmers for notifying authorities of sick and dying birds more quickly than the previous year, ensuring quick containment of infection on the farm.

Yet, she says the battle is far from won. “Tell people of the hardship we are suffering,” she asks. “We have received protective clothing, masks and boots from FAO, which even conducted a compensation strategy study here in support of a World Bank project … but we urgently need outside help in education and communication on the disease and diagnostic facilities to speed up response time.”
“Avian flu came to within 500 metres of the farm, but it didn’t make it through the gate.”

Vuong Tuan Ngoc
Vice-Director
Phuc Thinh Joint Stock Company
Viet Nam

PROTECTING THE BREEDS

Breeding farms around Viet Nam that produce chicks and ducklings for the poultry sector are terrified that avian flu will wipe out their precious genetic stock. They report that strict prevention measures are so far keeping the stock safe.

“We even require that our workers live here on the premises in dormitories for two-week shifts, then go into a buffer zone for three days before leaving,” explains Vuong Tuan Ngoc, of the Phuc Thinh Joint Stock Company in Hanoi, a farm that employs 200 workers and produces 200 000 chicks a month. “The problem is that if the workers go out they have contact with home chickens or market chickens and can bring in the virus.

“The measures worked. During the last outbreak, avian flu came to within 500 metres of the farm, but it didn’t make it through the gate,” he says.

LOCKED GATES IN THAILAND

In Thailand’s Supanburi province, where the virus was first detected in the country, a visit to two small egg farms down a quiet side road illustrates how the virus can be stopped. Both farms have hen houses built on stilts, with the chicken droppings fertilizing a fish pond below. But one hen house is full of birds and the other is empty, the farm bankrupt like so many in the province.

“We lost 10 000 birds in the first wave, and had to shut down for six months,” recalls farmer Boonchoo Sondej. “We restocked and spent US$2500 on protection measures – disposable protective clothing, antibiotics, disinfectant, nets to keep wild birds out, everything. Our gate is always locked now and no outsider can enter the coops.”

She looks over at her neighbour, whose farm is eerily silent.

“They got hit by the second wave. People always seemed to be coming and going from their farm,” she says.

BANGKOK, Thailand – A unique feature of the international response to the Asian bird flu emergency is the close collaboration among FAO, OIE and WHO.

“The OIE is in charge of disease information – its member countries are obliged to report disease outbreaks – while FAO does development work,” explains Dr Carolyn Benigno, Animal Health Officer at FAO’s regional office here. “We have guidelines on disposal, vaccines, surveillance, diagnosis and so on, which were commented on by OIE. And I’m in touch with their office in Tokyo about holding joint workshops, for example, on contingency planning for bird flu-free countries.”

“If WHO learns of a human case, they contact us immediately to find out if there is an outbreak in chickens in that area. It makes their investigation easier.”

It seems the collaboration has been noticed: “The three agencies come to regional meetings together and speak with one voice,” notes Dr Tri Satya Putri Naipospos, Director of Animal Health for Indonesia.
ARMY OF VOLUNTEERS HELPS DETECT FLU EARLY
THAILAND’S STRUGGLE TO CONTAIN BIRD FLU

BANGKOK, Thailand – With a disease that spreads like fire, it is critical to stamp out the first flames.

Thailand learned that lesson the hard way after the 2004 bird flu epidemic devastated its industrial and small-scale poultry sectors – with an estimated loss to GDP of US$1.2 billion – and left a dozen people dead.

“Early detection is very important and we try very hard to find outbreaks early,” says Dr Chaweewan Leowijuk, Deputy Director General of the Department of Livestock Development. “We have improved our procedures and now have 1.2 million volunteers – one per 10 families – in place, local people who get a little training in how to recognize symptoms.”

As soon as the first new bird flu cases were reported in July 2004, the volunteer army was remobilized to look for signs of the disease in chicken coops and markets around the country.

Managing movement of poultry is imperative for control of bird flu. In Thailand, authorities have gone as far as introducing passports for one category of poultry: fighting cocks.

A bit larger than a national passport, the 24-page cardboard-covered fighting cock passport needs three photos: comb to toe, head, and legs, which all show identifying markings as unique as fingerprints. Cocks are tested for bird flu every two months and the results entered in the passport.

“Cock fighting is so popular here that the best cocks travel all over the country, even by plane, to fights,” explains Yuthana Chaisakdanugull, Director of Animal Movement Control and Quarantine Division, Department of Livestock Development. “When one province that banned cock fights didn’t have a second wave outbreak of bird flu and an adjacent province did, it reinforced the belief that the cocks spread disease. So we came up with the idea of the passport.”

Although Thailand now has put a nationwide ban on cock fighting due to the epidemic, cock owners must still use the passports to move their prized birds around the country.
CONTROLLING MOVEMENT

Once an outbreak is reported by fax or e-mail to a bird flu “war room” in Bangkok and then confirmed, the order goes out to activate checkpoints on roads and airports in the infected area. Infected poultry must be prevented from spreading the disease to adjacent and even distant flocks. Police and army personnel reinforce livestock technicians at inspection points.

For maximum flexibility and rapid reaction, each of the 76 provincial governors also has the authority to order movement control and culling, in coordination with the central government.

The governor of Supanburi Province, where the virus was first detected in Thailand, has become somewhat of an expert in the behaviour of the disease, ready to play his part in directing local control operations.

“During the first episode of avian flu we were quite inexperienced and didn’t know how to handle the disease,” recalls Governor Songpon Timasat in his spacious office overlooking the four-lane highway from Bangkok. “But for the second episode, we are quite experienced with it and, with technical guidance from public health and livestock experts, put our combined efforts into the target areas.”

“I see a good change in people lately,” he adds. “They are more willing to participate in public health and disease prevention measures.”

Avian influenza is not the first transboundary animal disease to wreak havoc and it won’t be the last. How can countries be better prepared, react faster and stop disease in its tracks?

Donors with a vision of helping in the long term could consider supporting the creation of strong regional networks for information exchange and analysis based on rigorous disease surveillance. FAO has already launched such networks in Asia but needs more resources to continue. Contingency planning for animal disease outbreak is critical: one reason that Japan, Malaysia and South Korea brought their avian flu outbreaks quickly under control was because they had detailed contingency plans ready to roll at the first sign of the disease.

“We haven’t done any contingency planning yet for the next time,” admits Dr Tri Satya Putri Naipospos, Director of Animal Health for Indonesia. “That involves a lot of money. And it has to be done in cooperation with industry. To get their attention we would first have to do a big public awareness campaign on the advantages of being prepared.”

FAO’s Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases (EMPRES) was created in 1994 to help countries like Indonesia with the technical assistance, tools and funding to prevent disease outbreaks getting out of control.
Cover photo: An egg farmer in Thailand bars outsiders, who might carry the avian flu virus on their shoes or clothing, from entering his hen house. (FAO/S. Khan)

Back cover photo: Duck farm in Thailand with newly installed net to keep ducks and wildlife apart, a measure against the introduction of the bird flu virus. (FAO/S. Khan)

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