FAOAIDEnews
Avian Influenza Disease Emergency

Update on the Avian Influenza situation (As of 15/06/2004) – Issue no. 16

Egg merchant, Traditional market, Lampung, Sumatra (Photo: Dr. L.Allen)

The information summarized below is gathered from official and non official sources, which are quoted in the text. AIDE news is prepared by the FAO Technical Task force on Avian Influenza.

1. Summary of the situation

- **USA (H7N3)**: A commercial poultry breeder flock with approximately 24 000 birds was depopulated and buried on 27/05/04 in near Sulphur Springs in Hopkins County, northeast Texas. Routine blood tests indicated that the flock, which lays eggs for hatching, had the H7N3 subtype of avian influenza. A second flock of some 24,000 breeding chickens belonging to the same owner located about eight kilometres from the initial flock was also depopulated despite no evidence of clinical disease (i.e., increased mortality). (27/05/04 source: ProMED, Texas Animal Health Commission (TAHC) website, gphin)

- **Russia**: Rumours of an avian influenza outbreak in Altay Region tracked by FAO, OIE and WHO were unsubstantiated and determined to be negative. (01/06/04 source: OIE – Russia informed OIE that the country had been free of avian influenza and no outbreak had occurred recently. However, they report that they are closely monitoring the situation.)

2. Post-epidemic surveillance and rehabilitation activities – What next?

- **Avian influenza control in Indonesia**

The outbreaks of avian influenza in Indonesia are consistently believed by local officials to be decreasing. No new cases have been reported since mid March, 2004.

The most critical need is for more and better surveillance data that can be managed and ideally combined with a GIS system to obtain meaningful analyses. Additionally, a mechanism is needed for government officials to declare an emergency situation which should include a streamlined system of reporting and sharing data from local to central government levels, thereby enabling the field operations (funds, personnel, and equipment).

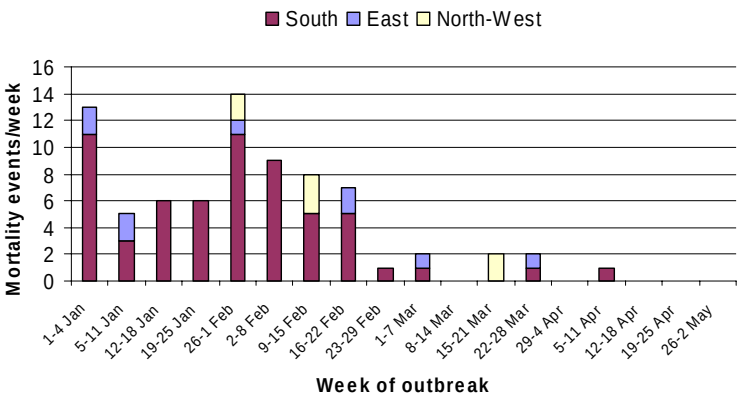
Although considerable numbers of chickens have been vaccinated in Indonesia, it is important to carry out the previously planned vaccination campaign around areas that have experienced HPAI or where there has been a determined risk and where prevention measures must be instituted. OIE guidelines of vaccine and its use should be followed. Once the disease is under control, vaccination may be discontinued, only if there is proven evidence that virus is not circulating in the affected or vaccinated areas.

Concepts and application of biosecurity measures are, in most farms lacking. If and where these are practiced, the owners have reported very favourable results (i.e., bio-exclusion). Training in biosecurity for producers, associated industries, government employees, and especially the vaccination teams, is critically needed. Training videos on biosecurity produced during the Exotic Newcastle Disease Task Force intervention in California (USA) in 2003 have been made available to the Ministry who were quite enthusiastic to translate them and distribute for use by field staff and production groups.

The most consistent and urgent message from producers was the critical need of government financial assistance with restocking and rehabilitation of the poultry industry.

- **Avian influenza control in Cambodia (TCP/CMB/3002, April 2004)**

Outbreaks: The first case of H5N1 was observed on 15 December 2003 at the Tamao Wildlife Rescue Centre. The first case in poultry took place on 24 December in a semi-commercial layer flock in Phnom Penh. This was the first case reported to the Department of Animal Health and Production (DAHP). Investigation took place on the same day, and the result was reported to the OIE. From 1 January to 29 April a total of 91 reports of avian mortality were reported to DAHP (see the graph), of which 33 were investigated and 12 were confirmed as H5N1 positive.



Mortality events reported to DAHP (n=92) by region and week of outbreak

Measures: Currently there are three task forces (TF) in the government to handle various measures: TF-1 (Surveillance, Investigation & Diagnosis); TF-2 (Communication and Mass Media) and TF-3 (Outbreak Control Measures). Stamping out is usually instituted on suspicion of HPAI on commercial/semi-commercial operations, but requires owner consent. In cases involving village chickens, culling of chickens usually takes place at the infected location.
The Government enforced a 'Prakas' (decree) on 16 January that bans cross-border movements of poultry and poultry products. This may have led a dramatically reduction in external infection pressure. The Prakas also prohibit movement of live poultry into or out of the protection zone (3 Km surrounding the affected area), but only after official confirmation of the outbreak – often a lag of 2-3 weeks from laboratory confirmation. Due to the movement control, some commercial farms in the protection zone decided to sell out all poultry in late January because they could not afford the cost for keeping birds. There is a common practice of throwing out viscera to be scavenged by free-ranging chickens in villages, and this was a likely factor to virus re-circulation. Poor biosecurity practices appear to have contributed significantly to the spread of the disease. There is a need to start active surveillance with commercial poultry operation providing chicks and feed to many operations around Phnom Penh, and 3-4 km protection zone would follow in its early stages. Laboratory competency must be assured when conducting IFAT and HI testing, as these will be used widely during all surveillance phases. Pathogenicity testing and detailed sequencing work has not yet been carried out on the Cambodian H5N1 isolates. Detailed analyses should be conducted in collaboration with OIE/FAO/WHO reference laboratories.

Clinical signs observed in Cambodia: Chickens (commercial broilers, layers, and village chickens) are typical of the HPAI clinical forms; ranging from peracute (sudden death with no clinical signs) to acute (2-3days period until death) manifestations, predominantly seen in younger birds. Lachrymal and nasal discharges, periorbital oedema or generally oedematous heads, deep red or cyanotic wattles and combs, diarrhoea and panting was evident in birds surviving beyond 2-3 days. Soft-shelled eggs characterize affected layer flocks. Mortality can approach 100% in 7-week old birds on an affected layer enterprise. Morbidity and mortality in older birds is more difficult to assess as owners of commercial enterprises often sold their poultry soon after suspicion of the disease. In a village setting, with a range of ages and low bird density, mortality varied between 50 and 90 percent at an individual household level.

Ducks demonstrated a 2-3 day disease course with clinical signs including lethargy, inability to walk, flaccid necks and yellow diarrhoea. Overall morbidity reached 10% in Black ducks and 20% in White ducks. White ducks appeared to have increased susceptibility with respect to fatality rates approaching 40% in affected individuals.

H5N1 was also isolated in two outbreaks involving non-poultry avian species. A large variety of captive birds as well as free-flying crows were affected in the outbreak at Tamao Zoo, Kandal province. The disease appeared first in raptors such as grey headed fish eagle, serpent eagles, hawk eagles, spotted wood owls, brown fish owl, spot bellied eagle owl and buffy fish owls in the first two to three days. The raptors were fed chicken meat or carcases obtained from the Kandal Market in central Phnom Penh. Consideration must be given to the oral point of entry or respiratory if the contaminated carcass was soiled with affected bird faeces. The live poultry market located approximately 30-40 m away from where the serpent eagle's enclosure is another possibility. Herons, egrets and cranes were subsequently affected suggesting respiratory transmission or mediated through free or wild birds such as crows which frequent the aviary areas. Psittacines were affected in a further outbreak, although only 2 recent introductions died in an aviary group of 30. A total of 86 birds died and 261 birds remained clinically unaffected. Clinical signs, primarily lethargy and inappetence, were also evident in zoo cats (tiger, leopard, etc. all have recovered).

- **Biosecurity – The Beginning**

Biosecurity is a holistic concept for prevention of disease entry (or escape) that must be practiced by all farmers, cooperatives, abattoirs, and alike if it is to be successful. Any break within the sanitary barrier of biosecurity measures would be an increase of risk for disease or infection entry to the production unit, market, or any commercial layer operation. Conceptually, biosecurity is most successful when a group of neighbours, commercial operations, or villages practices it.

One of the most common breaks in biosecurity for many transboundary animal diseases, including HP Avian Influenza, is the entry of people bringing in contaminated materials (clothes, shoes, soiled hands) to where susceptible animals are housed.

[Solution]

- Do not allow strangers access to where the animals are housed;
- Provide protective clothes to those that visit the flock, including boots;
- Provide baths with disinfectant for boots (use a pre-disinfectant bath to wash off the organic mater before entering disinfectant);
- Ideally, all farm workers and wanted visitors should take a full shower and use clothes from the farm before entering areas where poultry are kept; Clothes used on the farm, should not leave the farm.
- Producers who use outside workers for assistance on their farms, should ensure that these workers do not have poultry of their own;

- Animal health officials visiting affected premises should be extremely conscientious that they, through their work in epidemiological investigations or vaccination initiatives, could actually be infection and disease spreaders.
- The producers should know the origin of their feed and water. The quality of these should be periodically checked.

Another method of disease entry into a flock is through the introduction of contaminated equipment or instruments such as lorries (trucks), egg trays, cages, or feeders. The reuse of equipment (i.e., egg trays) or the purchase of used equipment (i.e., feeders) represent high risk activities.

[Solution]

- Clean and disinfect equipment and instrumentation to be used. If it is a cooperative group that brings in specific equipment on a regular basis (i.e., egg trays), insist that these be disinfected prior to introduction.
- Porous materials, such as wood and fibre, are more difficult to disinfect than synthetic materials.

However, the most common method for disease introduction is when animals that are incubating or are diseased are brought onto a premise with susceptible animals.

[Solution]

- Ensure the animals to be introduced to the farm/flock are healthy. If possible, a health certification should be obtained.
- Vaccinate only healthy animals.
- Establish a quarantine area where the new animals are not housed with the poultry already on the farm. These housing areas should be separated from each other as much as possible. Use separate workers to handle the different animals. If this is not possible, handle or feed the new animals last.
- Establish mechanisms to separate wildlife from poultry production farms (i.e, use of enclosures and nets). Establish mechanisms to exclude access of cats, dogs, rats and other vermin to where the poultry are raised or where there are laying hens.

The concept of “all-in-all-out” among biosecurity deserves special attention as it offers an additional safety mechanism. It basically refers to the exclusion of all introduction of new animals, and equipment or feed, once production has started thereby diminishing health risks to the growing broilers. Once the age for marketing the chickens is reached, all animals are removed and sent to the market or abattoir, thereby allowing the workers to clean, aerate, removal of old feed, and disinfect premises prior to the entry of new and highly susceptible chicks. This cycle is continuous and provides ease to systematically provide the necessary points for veterinary care, feed delivery, transportation entry, employee inputs, etc. If, and when, a disease were to enter the flock, the process of removal, cleaning, and disinfection is already established and can be quickly implemented with little down time faced by the farmer.

Allowing poultry to have free access to their environment (roads, stagnant waters, plastic, cats and dogs) is perhaps the most difficult aspect to overcome when attempting to control disease and apply some level of biosecurity. In these cases, biosecurity should commence with making loose chickens truly backyard chickens (not “front-yard” or “under-house” chickens), in a place that they can be observed and properly cared for. Being in a known and comfortable enclosure is also likely to reduce their stress (competition with vehicular traffic and potential predators) and therefore gain weight, lay more eggs, and have less risk for contact with diseased animals.

- **Emphasis on avian influenza research and control in USA**

  On 12 May 2004, USDA announced funds $13.7 million to its Animal and Plant Health Inspection Service to address avian influenza. Part of the funding ($10.8 million) will be used to develop a national low pathogenic avian influenza (LPAI) control and prevention program. The program will address biosecurity and monitoring issues within the commercial poultry industry and the live bird market system. A monitoring system for the H5 and H7 strains of LPAI in the broiler, turkey and egg layer industries will be developed; a set of standards in ensuring live bird markets will be regulated in a uniform fashion throughout the country. (FAO; USA government)

3. Actions taken – follow-up

- **FAO/OIE Regional follow-up meeting**: The meeting of Chief Veterinary Officers jointly organised by FAO and the OIE with the participation of WHO will be held in October 2004 to review the progress made in the control of HPAI in the most affected countries or those at risk of being infected.

- **TCP projects in pipeline**: In addition to the HPAI control FAO's TCP projects, regional/sub-regional TCP projects and donor funded OSRO projects, there are several projects for non-infected countries in the pipeline (e.g. Philippines, Bangladesh, Myanmar, and Bhutan). The aim of these projects is to enhance national capacities in the control of avian influenza, and to promote preparedness to minimize the impact of such diseases.

- **Recent Missions (May – June)**:

  [**Region**]
  - Dr. F. Dolberg (Denmark) FAO consultant (Poultry Production Expert) Ongoing. (covering: Cambodia, Indonesia, Lao PDR and Thailand).

  [**Lao PDR**]
  - Dr. R. Webb (Australia) FAO consultant (Epidemiology and programme management) Ongoing.
  - Ms. E. Bautista (Philippines) FAO TCDC Consultant (Project finance & administration officer) Ongoing.
  - Dr. Lu Huaguang (USA/China) FAO TCDC Consultant (Laboratory diagnostics) To commence in the week of 14/06/04

  [**Cambodia**]
  - Dr. Y. Froehlich (France) FAO consultant (Project Technical Adviser) Ongoing.
  - Dr. T. Rawdon (New Zealand) FAO consultant (Veterinary Epidemiologist) 15/04-01/05/04
  - Dr. S. Desvaux (France) FAO consultant (Veterinary Epidemiologist) Ongoing.

  [**Indonesia**]
  - Dr. L. Allen (USA) FAO consultant (Veterinary epidemiologist) 03/04-01/06/04
  - Dr. J. GARCIA (Mexico) FAO consultant (Vaccine Production) Ongoing.
  - Dr. I. DOUGLAS (Australia) FAO consultant (Veterinary Epidemiologist) To commence in the week of 14/06/04

  [**Viet Nam**]
  - Dr. H. Benard (New Zealand) FAO consultant (Epidemiology and emergency management) 28/03 – 7/05/04
  - Dr. F. Dolberg (Denmark) FAO consultant (Poultry Production Expert) 29/04-22/05/04.
  - Dr. A. McLeod, FAO AGAL (Rome) Senior Officer (Livestock Policy) 03–09/05/04
  - Dr. C. Benigno, FAO RAP (Bangkok) Animal Health Officer. 03-21/05/04.
  - Dr. R. Jackson (New Zealand) FAO consultant (Veterinary Epidemiologist) Ongoing.

4. Resources available

Relevant articles / publications:

- FAO/OIE Emergency Regional Meeting on Avian Influenza Control in Animals in Asia (26-28 February). The full text of the final report is available on: http://www.fao.org/ag/againfo/subjects/en/health/diseases-cards/HPAI_Bangkok.pdf

- China-ASEAN Special Meeting on HPAI Control. Beijing, 2 March 2004
  The full text of the Joint Press Statement "China-ASEAN Special Meeting on HPAI Control" is available on AIDEnews issue 8 pages 4 - 5: http://www.fao.org/docs/eims/upload/153869/AVIbull008.pdf

- FAO/OIE/WHO Technical Consultation on the Control of Avian Influenza
  3 - 4 February 2004
  The full text of the Conclusions and recommendations is available on FAO website: http://www.fao.org/newsroom/common/ecg/36647_en_experts.pdf

- Manual on the preparation of national animal disease emergency preparedness plans http://www.fao.org/docrep/004/x2096e/x2096e00.htm

- The use of vaccination as an option for the control of Avian Influenza (I. Capua, S Marangon) – 71st OIE General Session (May 2003). Available at: http://www.fao.org/docs/eims/upload/153564/A_71_SG_12_CS3E.pdf

- Information for shipping international diagnostic specimens to the International Reference Laboratories (see appendix 2 of AIDEnews issue 5 or 6, available at: http://www.fao.org/ag/AGA/AGAH/EMPRES/index.asp)

- FAO/EMPRES Manual on procedure for disease eradication by stamping out (Available at: http://www.fao.org//DOCREP/004/Y0660E/Y0660E00.HTM)

- FAO AIDE News (Vol. 1 - 15)
  (Available at: http://www.fao.org/ag/AGA/AGAH/EMPRES/tadinfo/e_tadAVI.htm)

- FAO AIDE News maps
  (Available at: http://www.fao.org/ag/AGA/AGAH/EMPRES/maps/e_maps.htm)

Relevant Web sites:

FAO Avian Influenza fact sheet:
http://www.fao.org/ag/againfo/subjects/en/health/diseases-cards/avian.html

OIE Update on Avian Influenza in Animals in Asia web site:
http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm

OIE Technical Disease Cards:
http://www.oie.int/eng/maladies/fiches/a_A150.htm

WHO Avian influenza web site:
http://www.who.int/csr/disease/avian_influenza/en/

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Annex 1: Countries affected (as of 15/06/2004)

area	first declaration to OIE	type	animals affected	human case	additional information		source[1)]
					last reported case	new information	
Republic of Korea	17/12/03	H5N1	layer, duck; virus isolated: magpie	no	24/03/04		Government; web media
Viet Nam	8/01/04	H5N1	chicken, quail, duck, muscovy duck	yes	06/05/04		gphin[2)]
Japan	12/01/04	H5N1	chicken, crow	no	05/03/04 (crow)		gphin, government
Taiwan province of China	20/01/04	H5N2	chicken, duck, pheasant	no	09/03/04		gphin; meeting report
Thailand	23/01/04	H5N1	virus isolation: chicken, duck, goose, quail, turkey, stork	yes	24/05/04		gphin, FAO; government[3)]
Cambodia	24/01/04	H5N1	Chicken, duck, goose, turkey, guinea fowl, wild bird	no	09/05/04		FAO; government
Hong Kong SAR	26/01/04	H5N1	Peregrine falcon	no	28/01/04 (Falcon)		Gphin
Lao, PDR	27/01/04	H5N1	Chicken, duck and quail	no	02/03/04		FAO; government
Pakistan	28/01/04	H7N3 H9N2(LP)	layer	no	End of January		FAO; government
Indonesia	06/02/04	H5N1	Chicken, duck and quail	no	25/05/04		gphin, FAO; government
China	06/02/04	H5N1	virus isolation: chicken, duck, goose, quail, pigeon , pheasant, black swan	no	20/02/04		FAO; government
United States of America	11/02/04	H7N2 (LP)	Chicken	no	11/02/04 (Delaware)		Delaware Department of Agriculture Statement; FAO
		H2N2 (LP)	Chicken	no	03/02/04 (Pennsylvania)		ProMED; Pennsylvania Department of agriculture website
	23/02/04	H5N2	Chicken	no	Late February (Texas)		Texas Animal Health Commission and USDA website; FAO
		H7N2 (LP)	Chicken	no	09/03/04 (Maryland)		Maryland Department of Agriculture News Release; FAO
		H7N3 (testing)	Poultry (breeding)	no	28/06/04 (Texas)	sero-positive found	Texas Animal Health Commission; gphin
Canada	19/02/04	H7N3 (LP)	Chicken	yes (conjunctivitis)	29/04/04 (British Columbia)		gphin; government website
	09/03/04	H7N3					gphin; government website
Netherlands		H7 (LP)	Chicken	no	22/03/04		FAO; gphin; ProMED
South Africa			commercial poultry	no	25/03/04		ProMED
Egypt		H10N7	wild duck	yes	23/05/04 (from survey sample)		ProMED

1) Official (OIE) and non official Information (ProMED, press agencies, FAO tracking systems…)
2) Gphin: Global Public Health Intelligence Network (Health Canada)
3) FAO; government: FAO representative in concurrence with Government sources
4) LP: low pathogenic strain

Annex 2

- Donor Assistance –

Many institutions and governments have committed emergency assistance funds to help control HPAI outbreaks. FAO AIDE news is collecting information on donor assistance (financial, in kind or technical assistance) through FAO representations in Asian countries. FAO recognises that the tables below may be incomplete. Nevertheless, we wish to thank all donors and governments for their cooperation in providing additional complementary information.

Recipient countries:

Cambodia

Donors	Amount (US$)	Description
FAO TCP	$390,000	TCP/CMB/3002 Emergency assistance for the control of avian influenza
ADB*	$91,940	Non-Trust Fund, under general coordination of FAO (for training, equipment and public awareness activities)
Australia	$50,000	AusAID through FAO Trust Fund (OSRO/CMB/402/AUL)
China	$50,000	Direct contribution to government (no details given)
France	$57,600	French Cooperation through FAO Trust Fund (OSRO/CMB/403/FRA)
Germany	$50,000	GTZ through FAO Trust Fund (OSRO/CMB/401/GER)
Japan	$56,000	Non-Trust Fund, grant assistance for grass-roots human security project for antiviral medicines & equipment
	$402,176	MoFA through FAO Trust Fund (OSRO/RAS/401/JPN, total $1,610,083)
WHO	$3,000	PPE supplies/training, lab training for DAHPs investigating teams and Human Flu Vaccine purchase.

*: Asian Development Bank (As of 03/04/04. source: FAO representation in Cambodia)

China

Donor	Amount (US$)	Description
FAO TCP	$390,000	TCP/CPR/3004 Emergency assistance for the control of avian influenza

(As of 14/04/04. source: FAO Emergency Operations Service)

Indonesia

Donors	Amount (US$)	Description
FAO TCP	$390,000	TCP/INS/3001 Emergency assistance for the control of avian influenza
Australia	$250,000	Human health protection through WHO
		Provide training (epidemiologist and virologist) in Australia
China	$100,000	Vaccines and training
Germany	$61,000	OSRO/INS/402/GER through FAO Trust Fund. Four trainings on clinical & gross pathology diagnosis (total 222 veterinarians)
Japan	$78,906	MAFF provided protective gear through grass roots aid fund
	$113,000	Public awareness campaign activities
	$10,000	Through JICA/Indonesia on diagnostic training (24 veterinarians)
	$402,117	MoFA through FAO Trust Fund (OSRO/RAS/401/JPN, total $1,610,083)
Netherlands		May provide veterinary experts in support of FAO operations.
USA		Support through the provision of laboratory analysis available in Atlanta

(As of 20/04/04. source: FAO representation in Indonesia)

Lao PDR

Donors	Amount (US$)	Description
FAO TCP	$390,000	TCP/LAO/3001 Emergency assistance for the control of avian influenza
ADB	$50,000	Direct procurement of Personnel, Protective clothing and equipment
Australia		Through AusAID to invite two government veterinarian for training course
China	$50,000	Re-establishing poultry breeding farms
France	$53,745	For surveillance activities (OSRO/LAO/401/FRA)
Japan	$404,040	MoFA through FAO Trust Fund (OSRO/RAS/401/JPN, total $1,610,083)
	$50,000	Through JICA
USA	$250,000	Direct contribution to WHO Regional Office (Manila)
WHO		Support for one veterinarian for a 2 month mission

(As of 14/04/04. source: FAO Emergency Operations Service, JICA)

Pakistan

Donors	Amount (US$)	Description
FAO TCP	$390,000	TCP/PAK/3002 Emergency assistance for the control of avian influenza
China	$50,000	For strengthening the diagnostic/samples analysis capacities of the national labs.

(As of 28/04/04. source: FAO representation in Pakistan)

Thailand

Donor	Amount (US$)	Description
FAO		Technical advice of experts
Japan		Experts & standard Antigen/reagents to assist AI typing/sub-typing.

(As of 08/03/04. source: FAO representation in Thailand)

Viet Nam

Donors	Amount (US$)	Description
FAO TCP	$390,000	TCP/VIE/3003 Emergency assistance for the control of avian influenza
ADB	$ 50,000	Protective gear
EC	$ 968,000	Protective clothing, lab equipment
Germany	$ 60,000	laboratory diagnostic equipment
Japan	$200,000	Tamiflu (anti-viral drug)
	$401,750	MoFA through FAO Trust Fund (OSRO/RAS/401/JPN, total $1,610,083)
WHO		unspecified
World Bank	$170,000	Formulation mission for Avian Influenza Emergency Recovery Project
Denmark	nearly US$130,000	Through DANIDA, in kind cooperation for AI control in 14 provinces (sprayers, protective clothing, diagnostic kits for local veterinarians)

(As of 14/06/04. source: FAO representation in Viet Nam)

Regional

Donor	Amount (US$)	Description
FAO TCP	$400,000	TCP/RAS/3004 Emergency regional coordination assistance for control of avian influenza in southeast Asia
FAO TCP	$400,000	TCP/RAS/3006 Diagnostic Laboratory and Surveillance Network Coordination for Control and Prevention of Avian Influenza in Southeast Asia
FAO TCP	$400,000	TCP/RAS/3007 Diagnostic laboratory and surveillance network coordination for control and prevention of avian influenza in East Asia
FAO TCP	$400,000	TCP/RAS/3010 Emergency regional support for post-avian influenza rehabilitation

(As of 14/06/04. source: FAO Emergency Operations Service)