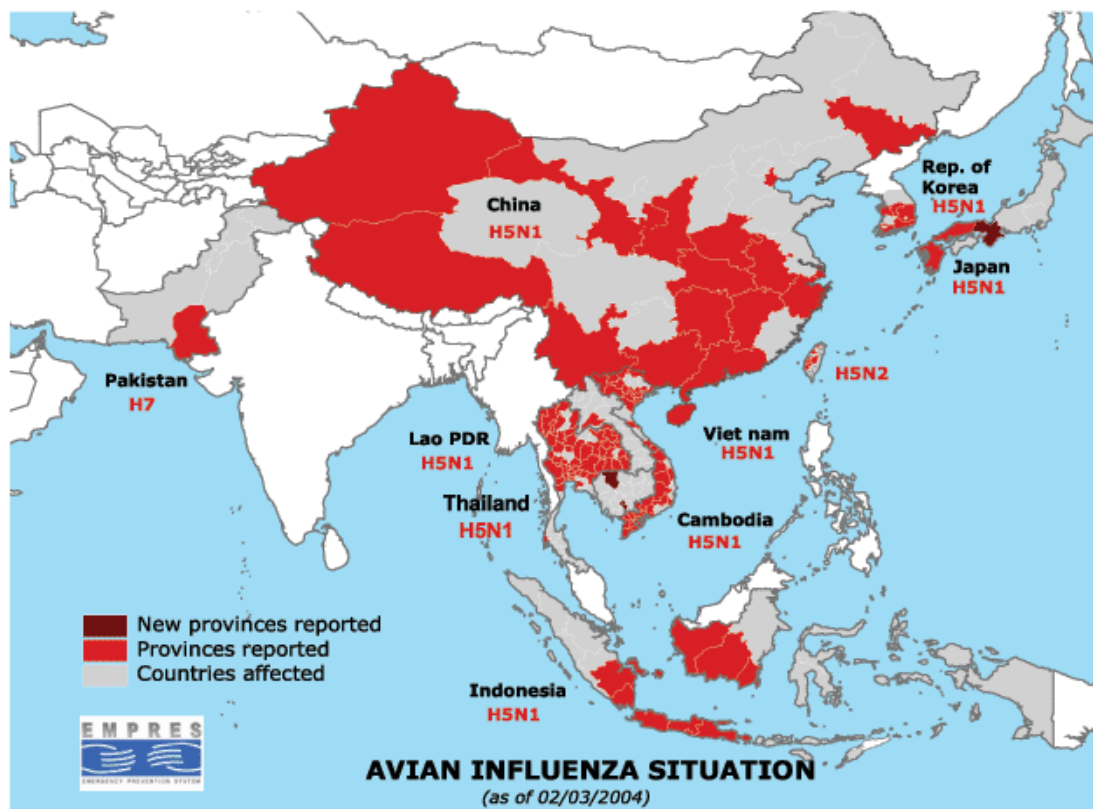


**Update on the Avian Influenza situation
(As of 3/03/2004) – Issue no. 7**

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****Highly Pathogenic Avian Influenza (HPAI) confirmed:**

As of 03/03/04, HPAI - H5N1 has been reported in Viet Nam, Thailand, Cambodia, Lao PDR, Japan, Republic of Korea, Indonesia and China. The number of countries affected remains the same since the last update.

- **China:** As of 03/03/04, China reported HP Avian Influenza in 16 provinces (49 confirmed and 3 negative). Since 17/02/04, there is no new report of suspected case. As of 27/02/04, 144,440 birds were infected, 127,648 died and 5,227,800 were culled. Vaccination has been undertaken on more than 9,634,700 birds so

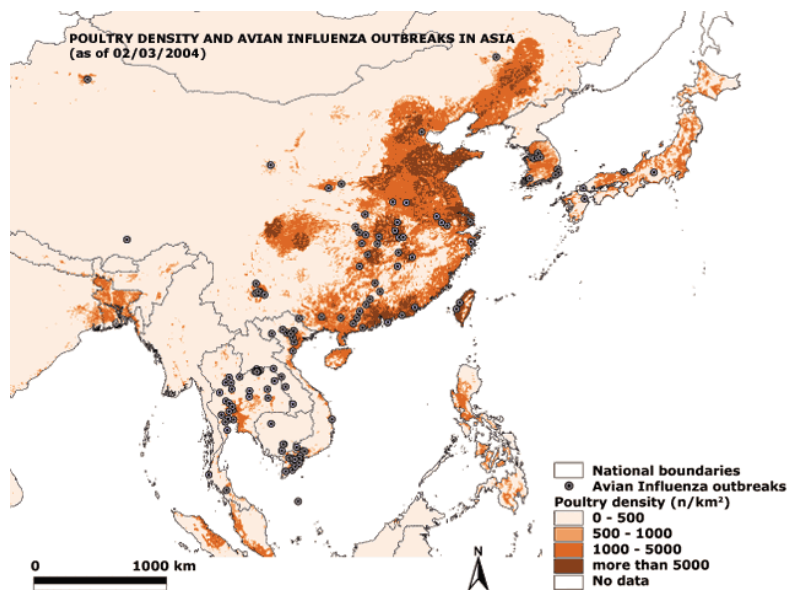
far. (Source: FAO and government website) Lifting of isolation measures have started on 22/02/04 after 21 days of isolation (Source: government website).

- **Lao PDR:** H5N1 infection was confirmed. The outbreaks were reported in Vientiane area, Champassak, Savannakhet, Luang Nam Tha and Bokeo so far. (24/02/04 – source: FAORAP and government)
- **Japan:** The third H5N1 outbreak of avian influenza appeared to have caused the death of 67,000 chicken in the Kyoto prefecture. The outbreak was not reported to the local veterinary authorities for a week, and during the period the mortality increased rapidly. The fourth outbreak is suspected in Shimane prefecture, total 74 young chickens out of 420 have died during 29/01-2/03/04. The final diagnosis will be available on 04/03/04 (27/02-02/03/04 – source: gphin, Japanese newspaper websites).

Preliminary analysis

As mentioned in a previous issue, data from official and non-official sources on avian influenza outbreaks have been entered in the EMPRES-*i* database for processing and analysis. The preliminary results presented below are focussing on China where the most accurate data could be obtained (geographical locations, number of animals affected, laboratory confirmation). The analysis will be extended to neighbouring countries when additional data are made available from national Veterinary Services.

Extract from "A preliminary GIS analysis on Avian Influenza (EMPRES group)"¹.



Map: poultry density (spatial resolution: 0.08 degree) and outbreak locations (as of 02/03/2004)

obtained from the National Imagery and Mapping Agency (NIMA) database and therefore not from the most accurate source, i.e. Global Positioning System (GPS) units) and also provide a better estimate of poultry density at this lower resolution.

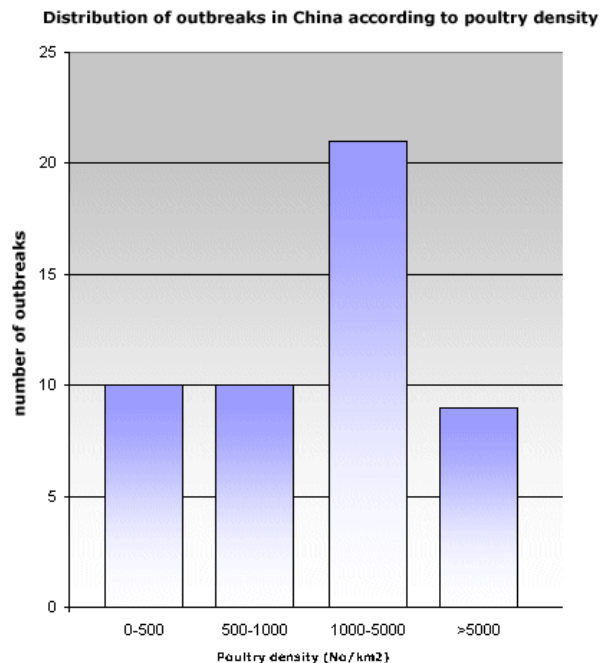
The poultry density map was used to derive the average density of poultry at outbreak sites. Before processing the data, the outbreak location map was converted into a raster map and the resolution of the poultry density map was rescaled to a lower resolution (final resolution: 0.25 degree). This way, the average poultry density calculated in affected areas could take into consideration the lack of accuracy of geographically referenced outbreaks (coordinates

¹ It is understood that this work needs ground-truth validation

In affected areas, the average poultry density is 2414.4 animals per square kilometres. The results obtained at outbreak location site were compared to a sample of randomly selected non-affected areas (250 locations) where the poultry density was found to be 1384.08 animals per square kilometres. These two results obtained were found to be statistically different.

The distribution of outbreaks according to poultry density is also shown in the graph. It can be highlighted that more than 80 % of the outbreaks are observed in area where the density is below 5000 animals per square kilometres and more than 40% fall in the range [100-5000].

It must be noted that this work will be completed in the next issue and other geographical parameters and potential risk indicators (human density, pig density, road and river networks) will be further analysed and discussed.



Graph: distribution of outbreaks in China according to poultry density (derived from poultry density and outbreak location maps)

Under investigation / rumours and suspicions / other information:

- **India:** The sudden death of pigeons observed in Kamakhya Hindu temple in Guwahati, state of Assam. It was reported that around 1,500 of an estimated 5,000 pigeons start rolling their heads, fall to the ground and died within a week. (26/02/04 – source: gphin)
- **Trinidad and Tobago:** On 25/02/04, an outbreak of a bird disease reported at a farm in Cunipia. FAO sent request for further information through the regional/country offices network. Samples were sent to UK for diagnosis, and the result revealed the first discovery of Infectious Laryngotracheitis (ILT) into the country. (25/02/04 – source: gphin)
- **Japan:** Genome analysis revealed all of the 8 segments of the isolates from the first and the second outbreak were bird origin and were different from the H5N1 virus isolated from human in Hong Kong and Viet Nam (source: Bangkok meeting report)
- **Republic of Korea:** CDC confirmed on 25/02/04 that the avian infection in Republic of Korea is not the same H5N1 strain that has killed millions of birds in Asia (26/02/04 - source: gphin).

Control strategies currently in implementation (see annex):

- Vaccination has been started/ordered in: China (Central & Southern areas), Taiwan province of China, Hong Kong SAR, Indonesia, and Pakistan: and planned in Myanmar (source: reported during the regional meeting).

2. Countries affected (as of 03/00/2004)

area	date declared to OIE	type	animals affected	human affected	additional information	
					info.	source ¹⁾
Republic of Korea	17/12/03	H5N1	layer, duck	no	No outbreaks since 05/02/04	Government
Viet Nam	8/01/04	H5N1	chicken, quail, duck, muscovik duck	yes	57 provinces affected	gphin ²⁾
Japan	12/01/04	H5N1	chicken	no	third outbreak confirmed, fourth suspected	FAO; government ³⁾
Taiwan province of China		H5N2	chicken, duck, pheasant		low pathogenic	gphin; meeting report
Thailand	23/01/04	H5 (N1)	virus isolation: chicken, duck, goose, quail, turkey, stork	yes	14 infected areas in 9 province and 163 control areas in 40 provinces	gphin, FAO; government
Cambodia	24/01/04	H5N1	Chicken, duck, goose, turkey, guinea fowl, wild bird	no	Samples typed in the Pasteur Institute in Cambodia	FAO; government
Hong Kong SAR	26/01/04	H5N1	Peregrine falcon	no		gphin
Lao, PDR	27/01/04	H5N1	Chicken, duck and quail	no		FAO; government
Pakistan	28/01/04	H7	layer	no		
Indonesia	06/02/04	H5N1	Chicken, duck and quail	no	chicken have been dying since August	gphin
China	06/02/04	H5N1	virus isolation: chicken, duck, goose, quail, pigeon, pheasant, black swan	no	16 provinces affected	FAO; government
United States of America	11/02/04	H7		no	Low pathogenic, under control, conducting studies	FAO-liaison office in Washington D.C.
		H5N2		no	High pathogenic, conducting studies	Texas Animal Health Commission and USDA website
Canada	19/02/04	H7N3	Chicken	no		gphin

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

3. Situation in the neighbouring countries at risk

Country	update	Situation	Source
Myanmar	27/02/04	No outbreak reported import ban, surveillance, border check post; awareness campaign; vaccination on breeders planned	FAO Rep. Myanmar; government
Bangladesh	27/02/04	No outbreak reported import ban on poultry, poultry products & biologics; border control; monitoring; daily reporting; quarantine newly introduced birds; public awareness; biosecurity measures at farm	FAO Rep. Bangladesh; government
Bhutan	12/02/04	No outbreak reported import ban on poultry and poultry products; vigilance at entry points; risk assessment; biosecurity	FAO Rep. Bhutan
Nepal	10/02/04	No outbreak reported import ban; active surveillance; cash prize for first reporter; public awareness; contingency planning	FAO Rep. Nepal
Brunei Darussalam	27/02/04	No outbreak reported import suspension on poultry and its products; border controls; risk assessment; import live day old chick or fertilised eggs with official certificate; temporally suspension on open live bird market	Government
India	27/02/04	No outbreak reported imports ban; border check post; monitoring	Government
Malaysia	27/02/04	No outbreak reported Import ban; border control; active surveillance; mortality threshold (3%)	Government
Philippines	27/02/04	No outbreak reported Import ban; monitoring; serological surveillance in high risk areas; coastal monitoring of smuggling; wild bird survey	Government
Singapore	27/02/04	No outbreak reported Import ban on live poultry, poultry products, eggs and birds; active surveillance of imported poultry, its products, captive birds and migratory birds; biosecurity and inspection of farms	Government
Sri Lanka	27/02/04	No outbreak reported Import suspension on poultry, its products, its by-products and feed; live parents bird quarantine (30 days); public awareness	Government
Timor-Leste	27/02/04	No outbreak reported import ban; samples tested negative	Government

4. Actions taken – follow-up

- FAO/OIE/WHO Technical Consultation on the Control of Avian Influenza
3 - 4 February 2004 Conclusions and recommendations
Series of recommendations regarding HPAI control were made after the two-day meeting of experts. The full text is available on FAO website:
http://www.fao.org/newsroom/common/ecg/36647_en_experts.pdf
- **FAO/OIE Emergency Regional Meeting on Avian Influenza Control in Animals in Asia (26-28 February)** – a joint FAO/OIE meeting in collaboration with WHO and the Department of Livestock Development, Thailand, was held in Bangkok. The extract from the recommendations made by the participants are as follows:
 - Asian member countries of the FAO and OIE have outlined their national strategies related to the control of highly pathogenic avian influenza (HPAI). They will take into account the recommendations from FAO-OIE Conferences held in Rome (3-4 February, 2004) and Bangkok (26-28 February, 2004) to prepare their short, medium and long term programmes related to the control of HPAI and other priority epizootics in animals to protect public health and to rebuild their poultry sector where relevant.
 - ASEAN and SAARC are the relevant institutions for the coordination of regional policies for animal health, in their member countries under the guidance of the Regional Steering Committee of Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs).
 - Member countries and donors will refer to the preliminary FAO-OIE assessment of needs defined during the Bangkok Conference (26-28 February, 2004) as a guide for bilateral and regional arrangements.
 - A regional avian influenza coordination group should be formed to facilitate joint decision making, information sharing and training.
 - The capacity of national animal and public health services for disease surveillance, response, control and prevention activities should be strengthened.
 - Resources should be made available to conduct an epidemiologic assessment by international and local experts to develop a descriptive epidemiologic analysis of the outbreak.
 - A zoning approach to expand free areas while driving the disease into smaller and smaller pockets is essential to control within the region.
 - Countries should move to a system of zones based on populations of poultry, geographic areas or disease status with the aim of developing free zones and recovery of export capacity.
 - A regional laboratory network system needs to be established as the closest laboratory may be in a neighbouring country. This would also allow reagent production and sharing as needed.
 - Support for research on disease transmission among other things to help control the disease in the region.
 - Emergency preparedness plans must be developed in each country and at regional levels to allow rapid response to new outbreaks of highly contagious diseases.
 - International reporting standards of the OIE is essential to establish confidence on the world stage of veterinary actions and progress toward stated goals.
 - Member countries and donors will refer to the OIE standards as references in the definition of new policies on animal health and zoonoses to be implemented through national and regional programmes for the short, medium and long-terms.
These standards include:
 - Quality of vaccines;
 - Diagnostic methods;
 - Quality and evaluation of Veterinary Services;

- Humane killing of animal and carcasses disposal methods;
- Safety of animal and animal products in regional and international trade;
- National surveillance and notification procedures of animal diseases to the OIE; and,
- Zoning and compartmentalization.
- Member countries and donors will refer to WHO guidelines for all occupational human health and safety.

- Infected and susceptible animals will be euthanized and disposed of as soon as possible but striving for the recommended time of within 24 hours.
- Susceptible animals and on all suspect premises will be subject to regular inspection and observation over two or more incubation periods of the disease.
- If resources are limited, premises will be prioritized so that those with high potential for active spread of the agent are acted on before those that do not have a high potential for active spread.
- Contaminated and potentially contaminated materials, including animal carcasses, will be properly disposed of within 24 hours of the destruction of the susceptible animals. Disposal will be done in a manner that does not allow the avian influenza agent to spread, has little to no effect on the environment, and conserves meat or animal protein if logistically supportable from a biosecurity viewpoint.
- All premises on which animals are euthanized and disposed of will be required to be cleaned and disinfected.
- Biosecurity procedures to prevent the spread of avian influenza will be implemented within 24 hours of the identification of the first presumptive positive premises
- Development of common educational materials for biosecurity and public health should be completed and shared with the region for translation and distribution across the region would be essential for biosecurity and containment.

- Veterinary Task Force in charge of preparing emergency control, contingency, and response plans should include, among others from other Agencies, individuals responsible for the public health sector for consultation by these authorities.
- Preventing infection in individuals at higher risk of exposure (veterinarians, cullers, laboratory workers, health care workers, etc) should involve provision of personnel protective equipment (PPE), vaccines and antivirals, training, technical guidance, and advisories. Those individuals who, either working in specific diagnostic laboratories or in field control actions may be exposed to high concentrations of virus, should have baseline serum drawn.
- Public awareness programme for avian influenza should focus on health hazards of handling infected or diseased birds (farmers, children), or contaminated equipment and material (egg crates, cartons, bird cages, ...).
- There is no risk to human health from consumption of wholesome and properly cooked, or processed products, including eggs. Good hygienic practices should always be applied in food preparation.
- Potentially exposed, known infected, or diseased poultry which are culled, should never enter the human or animal food chain, and must be properly disposed of. Eggs produced under systems of potential or known exposure should likewise not enter food chains.

- Samples of animal origin should be sent to the national reference veterinary laboratory for preliminary or primary diagnosis with further dispatch to reference laboratories. Reference laboratories of OIE, FAO, and WHO, are recommended to share timely results of their analysis with other laboratories, the world community and most certainly the authorities of the country of origin. Samples of the material and/or isolates should be shared with appropriate laboratories able to handle the agent in question and possessing proper import permits. Veterinary laboratories should conduct diagnostic procedures according to the OIE Manual of Standards for Diagnostic Tests and Vaccines.

- Vaccine is a valuable tool in the control and elimination of avian influenza
- Vaccine alone is unlikely to lead to a successful eradication; however vaccination combined with stamping out and adequate surveillance will likely lead to eradication in less time.
- Strategic vaccination in birds, if accompanied by appropriate surveillance will reduce the amount of virus excreted and lead to less viral exposure for humans.
- Vaccine, if used, must be produced in accordance with OIE guidelines.

- Wild birds should not be depopulated in an attempt to control avian influenza but separation, as much as possible should be attempted.
- Reducing contact rates between wild birds and large commercial poultry operations to prevent wild waterfowl from direct or indirect contact.
- Village poultry health care programs, including possible vaccination programs and certainly health/husbandry education is the best approach to 1) provide entree for surveillance operations, 2) reduce disease incidence, 3) improve rural livelihoods, and 4) reduce the threat or introduction of diseases into wild bird populations.
- Ministries of Agriculture, as well as Ministries of Natural Resources should limit the trafficking of wild birds, and ban the mixing of domestic and wild animals in live markets.

- Investment in raising awareness and capacity building is needed to allow more countries to begin integrating health monitoring programs as they develop natural resource management efforts.
- Plans to rebuild the poultry sector must be developed and implemented to set the poultry industry in a more biosecure position and protect livelihoods.
- Establishment of educational programs for improved poultry production should be started.

- Member countries and donors consider that the benefits of prevention outweigh the cost of emergency response.

In addition, the final general session in its final deliberations, recommended that the Chief Veterinary Officer or his/he representative of infected countries and countries at risk meet again in mid-2004 to monitor progress of the implementation of the programme.

The full text will be available on:

http://www.fao.org/ag/aqainfo/subjects/en/health/diseases-cards/avian_recomm.html

➤ **Technical Cooperation Programme (TCP) projects:**

FAO Technical Cooperation Projects (TCP) for Viet Nam, Cambodia, Lao PDR, Indonesia, China and Pakistan are operational. One Regional TCP is operational and four more are under preparation and will focus on emergency control of the disease, regional networking (laboratories and epidemiological units), epidemiological understanding of the crisis, and rehabilitation.

➤ **Missions carried out /planned:**

[Regional]

- Dr. L. Gleeson (Australia), Australia Animal Health Laboratory, CSIRO, international expert in epidemiology and emergency management. special FAO consultant. Mission to Thailand, China, and Viet Nam. Ongoing.
- Dr. H. Wagner, FAO Regional Office (Bangkok) Senior Animal Production and Health Officer. Mission to India for the SAARC meeting 16/02/2004

[Lao PDR]

- Dr. C. Benigno, FAO Regional Office (Bangkok) Animal Health Officer. Mission to Lao PDR 29-1/02/2004

- Dr. R. Webb (Australia), International expert in epidemiology and programme management. Mission to Lao PDR. Ongoing.

[Thailand]

- Dr. D. Swayne (USA), Pathologist, Avian influenza and other exotic or emerging poultry diseases, Southeast Poultry Research Laboratory, USDA/Agricultural Research Service, OIE expert in collaboration with FAO, Mission to Thailand 9-17/02/2004

[China]

- Dr. L. Sims (Australia), international expert in disease management and Avian Influenza. Mission to China. To commence on the week of 30.02.04.
- Dr. H. Wagner, FAO Regional Office (Bangkok) Senior Animal Production and Health Officer. Mission to China. Ongoing.
- Dr. J. Domenech, FAO (Rome) Chief, Animal Health Service, Mission to China. Ongoing.

[Cambodia]

- Dr. C. Benigno, FAO RAP (Bangkok) Animal Health Officer. Mission to Cambodia 9 – 14.02.2004
- Dr. D. Geale (New Zealand), Programme Coordinator for Exotic Disease Response, MAF, expert in epidemiology and emergency management. Mission to Cambodia. Ongoing.

[Indonesia]

- Dr. S. Morzaria, FAO Regional Office (Bangkok) Animal Health Officer. Mission to Indonesia 8 – 17.02.2004
- Dr. H. Westbury (Australia), international expert in epidemiology. Mission to Indonesia. Ongoing.

[Viet Nam]

- Dr. T. Forman (Australia), international expert in epidemiology and emergency management. Mission to Viet Nam. Ongoing.
- Dr. P. Blanc (France), international expert in project analysis. Mission to Viet Nam. Ongoing.
- Dr. G. Freeland (UK), international expert in project analysis. Mission to Viet Nam. Ongoing.

[Pakistan]

- Dr. P. Roeder, FAO EMPRES Animal Health Officer (Virology). Mission to Pakistan 21/01/2004 - 1/02/2004
- Dr. J. Lambers (Netherlands), international expert in poultry diseases and epidemiology. Mission to Pakistan. Ongoing.
- Dr. I. Claassen (Netherlands), international expert in vaccine production and regulatory aspects of disease control. Mission to Pakistan. Ongoing.

5. Avian Influenza Questions and Answers (full text available on the AGA Web site)

Q: Why does another animal/human health problem seem to follow so quickly on another?

Densely populated livestock areas are vulnerable to the introduction and spread of infectious diseases... Hence, the current widespread infection of commercial poultry flocks in many countries of Asia is not a total surprise. The region is known to form an influenza epicentre where birds, other animals and humans live closely together in conditions where viruses have the greatest opportunity to pass from one species to another... Traffic and trade dynamics create conditions for viruses, bacteria and parasites to hitch-hike around the world, affecting people, animals and

ecosystems. Climate change alters the distribution and abundance of insect vectors, influences bird migration and livestock concentrations. Urbanization, income rise and dietary changes create an increase in the demand for animal production. Poultry industries are expected to continue to expand rapidly in most countries in Asia for the next two decades. Outbreaks of Avian flu, SARS, foot-and-mouth disease, classical swine fever, Rift Valley Fever are all believed to reflect instabilities in the production environment and perhaps the general agro-ecology. FAO is exploring the linkages between disease occurrence, both in animals and for diseases in humans which are of animal origin, and environmental change, in order to better advice on health implications of production changes in the future.

More information is now available on:

http://www.fao.org/ag/aqainfo/subjects/en/health/diseases-cards/avian_qa.html#3

6. Related issues

- **Socio Economic implications - Animal Production Service, FAO** (derived from information in the WATT Poultry Global e-News: on 9, 12 and 16/02/2004, edited)

Reportedly on the 16th more than 80 million chickens had been slaughtered and the Highly Pathogenic strain of Avian Influenza [HPAI] had been detected in 10 Asian countries. [China, Indonesia, Viet Nam, Cambodia, Lao DPR, Thailand, Japan and the Republic of Korea] Other less pathogenic strains of AI have been identified in Taiwan province of China, Pakistan, USA and Canada.

The region's poultry industry is said to be devastated and FAO has advised vaccination as a control measure as the culling programmes in operation are failing to halt progress of the disease.

Negative socio – economic effects include:

- The most dramatic effect of the disease is in the reported deaths of 22 people in Thailand and in Viet Nam who have contracted avian influenza through contact with infected birds. Fortunately, so far, human to human transfer of infection has not been detected. The danger of being in contact with infected birds has caused a drop in consumption put at as high a level as 80% in parts of India [where the disease has not been reported].
- Culling birds in order to eradicate and control the spread of the disease is having a negative impact on the livelihoods of all classes of poultry owners and producers and their employees. Such an impact is most serious on the smaller family operated commercial producers for whom poultry production is their sole source of income generation. This fact has been specifically reported from Viet Nam.
- In addition to the culling several countries have discontinued imports of poultry and poultry meat. These include China, Japan, Malaysia, Singapore, and the Republic of Korea all of which have banned imports from USA following a reported outbreak of a less virulent strain of AI and India which has banned imports of poultry and poultry meat from everywhere.
- The markets lost through the reduced ability to export, through restriction of movement of birds and the closure of some domestic markets has further affected income generating ability, especially for the smaller producers. (Singapore, parts of China)

- The restriction of movement of birds, newly introduced market regulations in several countries has reduced the ability of producers to sell their poultry thereby reducing their incomes.
- Restriction of imports to Hong Kong and to Singapore both of poultry meat and of eggs has had a negative impact on the animal protein intake of a large sector of the population.
- Singapore has banned all small scale poultry farming which will critically reduce the incomes of many poorer households.
- Tourism has been negatively affected in Thailand, but less seriously than it was during the SARS outbreak, with the consequent negative impact on incomes.
- It has been reported from Viet Nam that the virus has been isolated from a small number of pigs. And from past experience of other strains of AI it is possible that the virus will cross this species barrier potentially placing even more livelihoods at risk in Asia.
- It has also been reported from Thailand that the infection has been found in a leopard and in open billed storks and from Hong Kong in a peregrine falcon. The implication of this is not good either for wildlife or for biodiversity.

International supports, etc.:

- The World Bank has pledged a loan of up to \$10million for restocking poultry farms in Viet Nam.
- The Chinese government has authorised a \$100,000 grant to Viet Nam to help combat the crisis.
- A prevention programme has been announced to be coordinated by a special commission set up at the State Veterinary Anti Epidemic Committee in the Democratic People's Republic of Korea.
- In Japan a mutual aid fund for poultry farmers has been successfully established.
- A comprehensive prevention programme has been announced in the Philippines.
- Malaysia has announced regulations for the prevention of slaughter of birds in markets.

7. Resources available

Relevant articles/publications:

- The use of vaccination as an option for the control of Avian Influenza (I. Capua, S Marango) – 71st OIE General Session (May 2003).
- 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 - 6) (Available at: <http://www.fao.org/ag/AGA/AGAH/EMPRES/index.asp>)
- Avian influenza: update on European response (Available at: <http://www.eurosurveillance.org/ew/2004/040205.asp#1>)

Relevant Web sites:

FAO Avian Influenza fact sheet:

<http://www.fao.org/ag/againfo/subjects/en/health/diseases-cards/avian.html>

OIE web site:

http://www.oie.int/eng/en_index.htm

OIE Technical Disease Cards:

http://www.oie.int/eng/maladies/fiches/a_A150.htm

WHO Avian influenza frequently asked questions web site:

http://www.who.int/csr/disease/avian_influenza/avian_faqs/en/

WHO Advice to international travellers:

http://www.who.int/csr/don/2004_01_26/en/

EU Public Health web site:

http://europa.eu.int/comm/health/ph_threats/com/Influenza/influenza_en.htm

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Annex 1**- Control strategies currently in implementation -**

Source of information: OIE reports, press releases, government and media reports, gphin.

Area	Control measures	
Republic of Korea	<ul style="list-style-type: none"> - Stamping out - Movement control (3km) - No vaccination - Surveillance (10km) 	<ul style="list-style-type: none"> - Import ban - Quarantine - Screening - Disinfection (include vehicles) - Zoning and check points
Viet Nam	<ul style="list-style-type: none"> - Modified stamping out - Movement control (10km) - Screening 	<ul style="list-style-type: none"> - Quarantine - Disinfection - Compensation - Control of wildlife reservoirs - Public awareness
Japan	<ul style="list-style-type: none"> - stamping out - Movement control (30km) - No vaccination - Surveillance 	<ul style="list-style-type: none"> - Import ban - Quarantine - Disinfection - Screening - vaccine bank planed
Taiwan province of China	<ul style="list-style-type: none"> - Stamping out 	<ul style="list-style-type: none"> - Import ban
Thailand	<ul style="list-style-type: none"> - Stamping out (5km / 1km) - Movement control (50km) - Surveillance (50km/5-10km) - No Vaccination - Daily reporting 	<ul style="list-style-type: none"> - Quarantine - Screening - Zoning - Compensation planned - 21 days surveillance programs - 30 days and 5 month phases
Cambodia	<ul style="list-style-type: none"> - Stamping out (3km) - Movement control - Surveillance (3-10km) 	<ul style="list-style-type: none"> - Disinfection - Quarantine - Import ban - Disinfection/Treatment
Hong Kong, SAR	<ul style="list-style-type: none"> - Vaccination - Surveillance in markets - Use sentinels 	<ul style="list-style-type: none"> - Import ban - Early detection programme - Wild bird survey - Test pigeon before marketing
China	<ul style="list-style-type: none"> - Stamping out (3km) - Vaccination (3-8km) - Movement control - Market control - Trucking back 	<ul style="list-style-type: none"> - Import ban - Disinfection - Quarantine - compensation planned - Vehicle check at main cities - Wild bird watch / disinfection
Lao, PDR	<ul style="list-style-type: none"> - Selective stamping out - Movement control - Surveillance (10km) 	<ul style="list-style-type: none"> - Import ban - Quarantine - Disinfection - Public awareness
Pakistan	<ul style="list-style-type: none"> - Stamping out (voluntary) - Movement control - Vaccination (voluntary) 	<ul style="list-style-type: none"> - Import ban - Quarantine - Zoning - Control wild reservoirs - Proper disposal of dead birds - Biosecurity
Indonesia	<ul style="list-style-type: none"> - Modified stamping out (1km) - Movement control of poultry, its products and farm waste - vaccination - surveillance - Tracking back 	<ul style="list-style-type: none"> - Quarantine - Zoning - compensation planned - Biosecurity - Monitoring and evaluation - no restocking for 30 days - Public awareness
United States of America	<ul style="list-style-type: none"> - Stamping out - Movement control - Surveillance 	<ul style="list-style-type: none"> - Import ban - Quarantine