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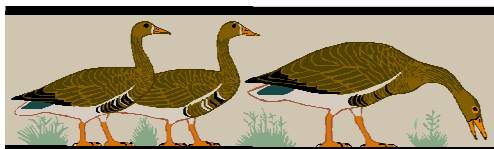
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FAO' S RESPONSE TO THE AVIAN INFLUENZA CRISIS



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1. BACKGROUND

Though the H5N1 avian influenza (AI) virus has existed since 1996, the true crisis in Asia started in early 2004 with the almost simultaneous declaration that the disease was killing hundreds of thousands of chickens and ducks in more than ten countries. To date there have been over 100 human cases with 57 fatalities and more than 140 million dead or culled birds. Its geographical spread, human dimension, and the huge social and economic impact are unprecedented. Economic losses to the Asian poultry sector are estimated at around US\$10 billion. Avian Influenza, due to Highly Pathogenic Avian Influenza (HPAI) H5N1 sub-type (HPAI-H5N1), is threatening the livelihood of hundreds of millions of poor livestock farmers, jeopardizing smallholder entrepreneurship and commercial poultry production, and seriously impeding regional and international trade and market opportunities.

One of the main aspects of the HPAI crisis is the risk of a major international human pandemic. Since the beginning of epizootics FAO, in conjunction with the World Organisation for Animal Health (OIE), has considered that the most efficient way of preventing a pandemic is to control poultry outbreaks. FAO, in strong collaboration with OIE has mobilised itself to ensure that prevention at the source will be addressed as a matter of urgency.

Since late July 2005, reports in Kazakhstan, Mongolia, Russia, and China (Xisang [Tibet] and Xinjiang Autonomous Regions) of the HPAI outbreak indicate the range of the disease is expanding from East and Southeast Asia to more areas in a north-westerly direction.

2. FAO'S IMMEDIATE RESPONSE

Considering the magnitude of the socio-economic disaster, including the knowledge that the most efficient way to prevent a human pandemic from occurring around the world, is to control the disease at the source. In poultry, FAO has reacted immediately. Emergency funds of US\$5.5 million were provided to support emergency plans to control HPAI and establish regional networks on surveillance, diagnostic and disease information in Asia. National and global strategies were then prepared and inter-agency coordination was promoted.

A technical HPAI Task Force was established in early February 2004 within FAO as a responsibility of the AGAH Service Chief. The Task Force was composed of officers from AGAH (particularly the EMPRES group), AGAL, AGAP, TCEO, GIIM in Rome, together with the livestock group at FAO RAP in Bangkok. The immediate objectives were consolidation of available data, information and communication, the undertaking of disease intelligence, and to prepare and implement project proposals.

2.1 INFORM AND COMMUNICATE

An AI bulletin was developed, "*FAO AIDE News*", in order to provide up to date information on the HPAI situation in Asia and affected countries, provide resource information (i.e., biosecurity at the farm level, how to dispatch field samples for diagnosis and missions to the region). To date, 33 issues have been published and are distributed electronically around the world.

A web page on AI was developed on the FAO-AGA website and a dedicated issue of the award-winning EMPRES Bulletin was published with regular AI updates in subsequent issues. The Organizations - AI website has become very popular as before the crisis in December 2003, there were 94 000 visitors to the AGA website compared to over 247 000 visitors as of August 2005. 10 Press Releases (some in conjunction with international partners – OIE and/or WHO) have been published and over 50 interviews were conducted during the first weeks of the AI crisis. FAO has also published a brochure on the Organizations activities and response to the avian influenza crisis in Asia entitled “*Enemy at the gate*” – available in English and French.

Three seminal documents have been written, endorsed and/or co-authored by international organizations:

- (1) “*FAO Guiding Principles for HPAI Diagnosis and Surveillance* (October 2004), with support from OIE.
- (2) “*FAO Recommendations for the Prevention, Control and Eradication of HPAI in Asia*”, and
- (3) “*FAO/OIE Global Strategy for the Progressive Control of Avian Influenza*”. Each of these documents has been downloaded several thousand times since being on the internet.

2.2. COORDINATION AND REVIEW MEETINGS

Several meetings and scientific international conferences were organised jointly by FAO and the OIE (World Organization for Animal Health), in collaboration with the WHO.

These were:

FAO/OIE Emergency Expert Consultation on the Control of Avian Influenza - Rome; 3-4 February 2004

FAO/OIE Regional Meeting on Avian Influenza Control in Animals in Asia - Bangkok, 26-28 February 2004

Preparation for WHO Avian Influenza research meeting and formulating of FAO/OIE common position. Venice, 7 October, 2004

Avian Influenza Research Consortium (FAO, OIE, WHO, CSIRO/AAHL-Australia), Melbourne, 20-22 October, 2004

FAO, OIE and WHO meeting to discuss future of WHO “Animal Influenza Network” research and human-animal interface. Geneva, 14-16 November, 2004

Second FAO/OIE Regional Meeting on Avian Influenza Control in Asia, Ho Chi Minh City, 23-25 February 2005.

OIE/FAO and WHO International Scientific Conference on Avian Influenza. Paris, 7-8 April 2005

European Commission - Integrated Zoonoses Strategy: workshop on improving collaboration between animal and human health surveillance networks in the Community. Luxembourg, 27-28 June, 2005

FAO/OIE/WHO Consultation on Avian Influenza and Human Health: Risk Reduction Measures in Producing, Marketing, and Living with Animals in Asia. Kuala Lumpur, 4-6 July, 2005.

Regional Consultation on the Global Strategy for the Progressive Control of HPAI (representatives from key affected and at risk countries in Asia (Australia, China, Democratic People's Republic of Korea, India, Indonesia, Japan, Pakistan, Thailand and Viet Nam, SAARC and ASEAN Secretariats). Bangkok, 16-18 May 2005.

World Bank / European Commission - Avian Influenza Technical Discussions and Coordination Meeting - the joint activities between FAO, OIE, and WHO. Washington, DC, 3 August 2005.

AU-IBAR and FAO Consultation on Avian Influenza in Africa, Nairobi, 13-16 September, 2005

Wildlife Conservation Society / FAO – *One World One Health* Forum. Beijing, November 2005 (pending)

FAO/OIE scientific conference on wildlife interactions and avian influenza. Rome, December 2005 (pending)

2.3 TECHNICAL AND OPERATIONAL ASSISTANCE AND UNDERSTANDING OF THE EPIDEMIOLOGY OF THE CRISIS

US\$5.5 million were committed which allowed the launching of 14 emergency TCPs operated by AGAH and TCEs new Emergency Centre for the Control of Transboundary Animal Diseases (ECTAD), as a responsibility of the FAO's Chief Veterinary Officer (CVO). The establishment of ECTAD and the CVO position in December 2004 were among the decisions that the Director General of FAO took, to improve the efficiency of FAO in combating major animal health crises. In addition to the FAO's immediate response through the 14 TCPs, the Organization implemented a complementary programme funded by Japan. The Government of Japan was one of the first donors to provide emergency funding to control avian influenza in South East Asia, particularly, Cambodia, Indonesia, Lao PDR and Viet Nam, to a total of US\$1 610 083. The project provided technical assistance, equipment (personal protection, laboratory supplies and surveillance equipment) to Cambodia, Indonesia and Lao PDR, and funded a series of studies in Viet Nam. Additional funding from Japan is planned under the existing Trust Fund.

- National Assistance

Seven national TCPs were prepared and implemented: Viet Nam, Cambodia, Lao, Indonesia, China, Pakistan and more recently the Democratic People's Republic of Korea. The objectives of these TCPs were to assess the country's disease situation, support diagnostics and surveillance, guide and design strategies, contingency planning, and provide equipment and laboratory consumables. Strong training components were always included, as well as economic and policy studies. Numerous technical expert missions were undertaken in each country. Collaboration with national authorities was very well developed and support from FAO was highly appreciated, particularly in regard to strategy preparation.

In countries where no national TCP was implemented some countries benefited through FAO's activities, by being included in Regional TCPs. This was the case in Thailand, a highly affected country where FAO and government services had very close, productive dialogue and collaboration.

A special effort was made in Viet Nam which was the most highly infected country and has had the greatest number of human fatalities. The largest part of the national territory was affected and many outbreaks occurred throughout 2004. FAO had a special role in taking the lead in the coordination of donors. The TCP and a complementary Japanese-funded project implemented by FAO, were included in a multidonor programme - the Avian Influenza Emergency Recovery Project - co-supported by the World Bank and other countries such as Japan and Denmark

- Understanding of the crisis and control strategies

One TCP was prepared with its immediate objectives at the Regional and International levels;

- Rapid assessment of the regional situation;
- Understanding the origin and the epidemiology of the crisis;

- Improve on tools to control the disease;
- Adjust the strategies as needed
- Provide assistance in the organization of international meetings (Rome, 2/2004) and regional conferences (Bangkok, 2/2004 and Ho Chi Minh City, 2/2005; above).

- Regional networks

Three regional TCPs were prepared for the three following sub-regions:

- Southeast Asia (Cambodia, Lao PDR, Malaysia, Myanmar, Indonesia, Papua New Guinea, Philippines, Thailand, Timor-Leste, and Viet Nam)
- East Asia (China, Mongolia, DPR Korea, and Republic of Korea)
- South Asia (Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka)

The primary objectives of these TCPs were to improve the quality of surveillance and diagnosis of AI and to improve transparency of the information through better reporting to the OIE (the organization responsible for official sanitary information). The TCP had two closely linked components: one network of national epidemiology surveillance teams and one network of national laboratories. One national epidemiology team and one national diagnostic laboratory were chosen to take a regional leading role for each of the sub-regional networks. In addition, an international FAO or OIE Reference Laboratory or Epidemiology Centre was chosen to bring in its expertise for assistance.

- Support to the Emergency Centre for Transboundary Animal Diseases (ECTAD)

The international coordination level at FAO Headquarters, was strengthened by the creation of the Emergency Centre for Transboundary Animal Disease (ECTAD) which was accompanied by initial resources. Within ECTAD, a multidisciplinary task force for HPAI was established and was instrumental for operation, coordination, and technical exchange. The HPAI Task Force, coordinated with the Ad hoc Epidemiology Consortium (Australia, France, UK, USA, and New Zealand) to develop activities, deliver outcomes, and reduce avian influenza. ECTAD resources were also used to develop mapping capabilities within FAO where disease or rumours could be overlaid with ecological factors (wetlands), soil use (rice) or social factors (poverty) in order to gain a better understanding of disease dynamics and possible intervention measures. FAO also believes that by having created ECTAD as a highly visible, urgent operational and intervention platform, this could attract specific donor contributions.

2.4. SPECIFIC THEMES

- Information Technology

One TCP was designed to improve information systems and to transfer them to countries.

The main objectives of this TCP were to build the capacity of participating countries in, disease monitoring and surveillance of poultry diseases within countries and the region by implementing upgraded TAD info systems in these countries. This enables participating countries to implement an early warning and detection system, based on a key unit that receives and analyses data thereby being essential for decision makers. This TCP highly complements the “Regional Network” TCPs in that, technical and analytical collaboration within the country clusters create mechanisms for coordinating and strengthening the surveillance and early warning of transboundary animal diseases (TAD) including HPAI.

- Epidemiological analysis, disease intelligence

Since the onset of the epidemic in early 2004, epidemiological data and information were collected and derived from a number of sources including: official information on outbreaks reported to OIE; published scientific papers; official government disease reports; GenBank accessions; reports from FAO and outside consultants; news articles in order to analyse the situation; production of regular updates and risk assessments that were widely disseminated to the health community. When possible, spatio-temporal analytical studies using logistic regression techniques have been attempted to further explore the contribution of identified risk factors in the occurrence of avian influenza. These analyses have been jointly carried out with National Veterinary Services in affected countries. The results of these studies, such as the ones carried out in Vietnam and Thailand, have been instrumental in understanding the epidemiology, ecology, and genetic relationships of HPAI viruses in the region and have been presented in several international fora.

- Social and economic impacts

Social and economic impacts of Avian Influenza control were addressed through a Regional workshop in Bangkok in late 2004. The objectives were to identify potential social and economic impacts of alternative avian influenza control programmes and suggest a role for FAO in contributing to their evaluation. It identified topics for further study and strategic planning development that required attention (and funding) by national governments and donors. It was of particular importance to undertake market chain analysis and compensation studies in Vietnam with compartmentalization studies in Thailand. It is important to FAO that representatives of the public sector (livestock services), and those of the private sector (industrial to small scale and civil society) were properly represented.

- Rehabilitation

One Regional TCP was designed to conduct socio-economic studies of HPAI in the most affected countries - Cambodia, Vietnam, Lao PRD, Cambodia and Thailand. The socio-economic impact was studied amongst different farming systems that were divided into large commercial, medium and small-scale commercial systems as well as mixed farming systems in rural communities. The emergency assessment included the impact on people's livelihood, production systems and trade. The project also looked at the identification of the major issues associated with rehabilitation and options available including biosecurity measures, compensation mechanisms, capacity building & public awareness. In this regard, a guide was developed by local partners for a community based approach of disease control, then translated to the five local languages. Regional workshops were organised to formulate the provision of technical support to donors for the required formulation process.

- Basic and Applied Scientific Research

Since the early days of the current outbreak, FAO has called upon wildlife veterinarians and scientists with the request that more information is needed on the true role of wild birds. Several independent studies, including decisive field studies carried out by FAO, identified the commercial duck as a reservoir and maintenance host for the H5N1 virus. These findings proved significant in underlying a research programme to better understand the biological mechanisms of their role and develop intervention measures. That aspect of the programme could be summarised as the need for better understanding of the basic immune response in domestic ducks, response to different vaccination regimes, validation of diagnostic assays, and even survival of the virus in different water types. In addition, the development of more sensitive diagnostic tools that would be inexpensive, robust, and can be used "chicken-coop" or "pond" side would be advantageous, as would vaccines that immediately protect after their

administration. In addition, oral or eye-drop vaccines would be an improvement over existing vaccination regimes. Also of concern are the possible roles that other species may have (i.e., swine and ferrets) on viral isolates obtained from outbreak areas, and a better study on the molecular basis for host range, virulence factor genes, and mutation adaptations. It is also possible that research could be promoted on the development of an avian influenza-resistant transgenic chicken or duck, although more pressing at the moment is the role of wild birds in the transcontinental movement of the virus which would require the formation of multidisciplinary teams undertaking field studies, sampling, banding or placement of telemetry units, releasing, and monitoring migrations and behaviour.

- Training and Capacity Building

Under the national and regional TCPs with assistance from donors, over 120 workshops have been conducted over an 18 month period and over 3 480 individuals have benefited from such training (February 2004 through September 2005, see attachment).

2.5. THE GLOBAL STRATEGY FOR HPAI CONTROL

FAO and OIE, within the umbrella of the Global Framework for the progressive control of Transboundary Animal Diseases (GF-TADs), and in collaboration with WHO, have developed a Global Strategy for Highly Pathogenic Avian Influenza (HPAI). The document was prepared in consultation with key partners from Asia following a meeting in the FAO's Regional Office for Asia and the Pacific, Bangkok, in May 2005. This document provides a vision and goal towards diminishing the risk of avian influenza to humans and poultry. It also provides approaches and implementation plans for the control of avian influenza. It is intended that other regions in Asia, Africa, Americas and Europe will also be covered in due time through a series of consultations to make the strategy truly global. The document is strongly based on the "*FAO Guiding Principles for HPAI Diagnosis and Surveillance*", "*FAO Recommendations for the Prevention, Control and Eradication of HPAI in Asia*" (October 2004 and September 2004, both prepared with expertise and support from the OIE) and on the OIE Terrestrial Animal Health Code (Chapter on HPAI and Guidelines for the surveillance of Avian Influenza). This Global Strategy supports national, regional, and international intervention measures.

Implementation:

- **Immediate to short term** (1-3 years): reduce the risk to humans by preventing further spread of HPAI in those countries that are currently infected by H5N1 (Cambodia, Viet Nam, Indonesia, Thailand, Russia and others). The control measure will be culling, biosecurity and movement control, combined with strategic vaccination of domestic poultry and ducks.

- **Short to medium** (4-6 years): adopting a strategy of wide-scale vaccination in the predominantly commercial and backyard poultry sectors with variable success in reducing the incidence of the disease, strict post-vaccination monitoring, to progressively confine the disease to defined foci and establishing disease-free compartments and zones.

- **Medium to long term** (7-10 years): this strategy will consider all control measures, including vaccination, zoning and compartmentalization as defined in the OIE Terrestrial Animal Health Code. For the long term success of this strategy, restructuring of the poultry sectors in the region will need to be seriously considered.

When first proposed, the implementation of the strategy had an indicative budget of some US\$100 million for the next three years to support the national, regional and international HPAI control programmes as outlined above, but this was before further spread to Mongolia, Russia, Kazakhstan, and other areas in China, had occurred. Today's situation is different.

2.6. INTER-AGENCY COLLABORATION

Interagency collaboration and coordination was given a high priority to better assist the member countries and provide identical advice. Issues on human health were always diverted to be addressed by WHO references, and aspects of agriculture/animal health were to be handled by the FAO Animal Health Service or the OIE.

In regard to animal health, the cooperation between FAO and OIE has strengthened since the beginning of the crisis. This cooperation is considered to be optimal and has proven to be very efficient and highly appreciated by the beneficiary countries and the donor community. A joint OIE FAO Network of Reference Laboratories, Epidemiology Centres and groups of experts on avian influenza (OFFLU) was launched in April 2005 to bring together the necessary expertise and research.

In addition to the conferences organized jointly by FAO and WHO (see above), several technical meetings and teleconferences have been held. Information and documentation has been exchanged to obtain greater views and seek endorsement. Several missions were planned jointly or were conducted separately to countries with good coordination and result sharing.

Consultation and stakeholder meetings were also held with sub-regional organisations such as ASEAN, ASEAN+3, and SAARC, for which documents were discussed, reviewed, analysed and approval sought.

In regard to cooperation with WHO, a series of activities were carried out in 2004-2005: joint FAO/OIE meetings in collaboration with WHO, FAO/OIE/WHO consultations to address the HPAI/human-animal interface, several teleconferences and an exchange of information. This cooperation has been further developed in 2005 with the preparation of two global strategies, one for humans from WHO, and one for animals from FAO/OIE, which were shared to take into account the necessary complementary measures to prevent a human pandemic: control of the virus at source in animals, actions at the human-animal interface, joint epidemiology field surveys, sharing of virus strains... Several joint missions were sent to countries, such as to Vietnam and more recently to Beijing and Harbin laboratory (China, August 2005). A special effort is being made to increase the interactions between the two networks of reference research laboratories, namely the human WHO Global Avian Influenza Network and the Veterinary OIE FAO Avian Influenza Network (OFFLU).

3. THE NEW AND EVER CHANGING SITUATION

With the official declaration by national authorities of H5N1 HPAI outbreaks in Mongolia, Russia, Kazakhstan, and other areas in China (Xisang [Tibet] and Xinjiang Autonomous Regions), the situation remains unstable. Though rare, there are increasing indications that certain species of wild birds may be responsible for the introduction of the virulent H5N1 virus to distant areas but, once introduced these can spread further through poultry production systems when biosecurity measures are disregarded. A high cause of concern would be the migratory pathways followed by infected birds, but what risk we do not really know, as there is little evidence that singles out one species of wild duck from another. Studies on wild, dead birds have been conducted in several countries since the 1980's but to date, a virulent virus has not been found in healthy (and therefore capable of flight and migration) birds.

FAO has taken a bold step to provide warning messages and press releases to other regions of the world that may be recipients of wild migratory fowl in the attempt that surveillance,

prevention and detection measures, development of contingency plans before an outbreak, are undertaken. This thereby averts possible decimation of a poultry industry so important to people's livelihood and a possible spill over into the human population.

In late August, 2005, the Director General approved emergency funds to establish TCPs avian influenza prevention and detection networks for Southern Europe, Near East, Northern, Western, Central, and Eastern Africa. This support represents an initial input that can only be sustainable if more investment on animal health services is assigned by the Governments and if additional funding from bilateral and multilateral donor agencies is forthcoming.

Number of people trained by FAO on avian influenza since January 2004 to date (15 September 2005)

	Number of course (participant)							
	Afghanistan	Bangladesh	Bhutan	Cambodia	China	DPRK	East-Timor	India
Inception workshop	(3)	(3)	(3)	(2)	1 (14)	(3)		1 (7)
Epidemiology training								
on field investigation and control				10 (879)	1 (38)			
on Basic Epidemiology				(2)	1 (4)	(35)	(1)	(1)
on Advanced Epidemiology				(1)	1 (2)	(2)	(1)	(2)
Laboratory training								
as Workshop				(2)	1 (38)	2 (5)	(2)	
as Individual training				2 (3)		1 (30)		

	Indonesia	Lao PDR	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	PNG
Inception workshop		2	3	2	3	3	3	2
Epidemiology training								
on field investigation and control	1 (474) 0	4 (261) 3	2 (200)	1 (50)			2 (140)	
on Basic Epidemiology	(1)	(5)		(20)	(2)			(1)
on Advanced Epidemiology	(2)	(1)		(2)		(1)		(2)
Laboratory training								
as Workshop	1 (26)	(2)	2		(2)		2 (24)	
as Individual training	7 (20)	3 (9)		3 (3)			2 (8)	

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