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HPAI Epidemic and lessons learned in Viet Nam

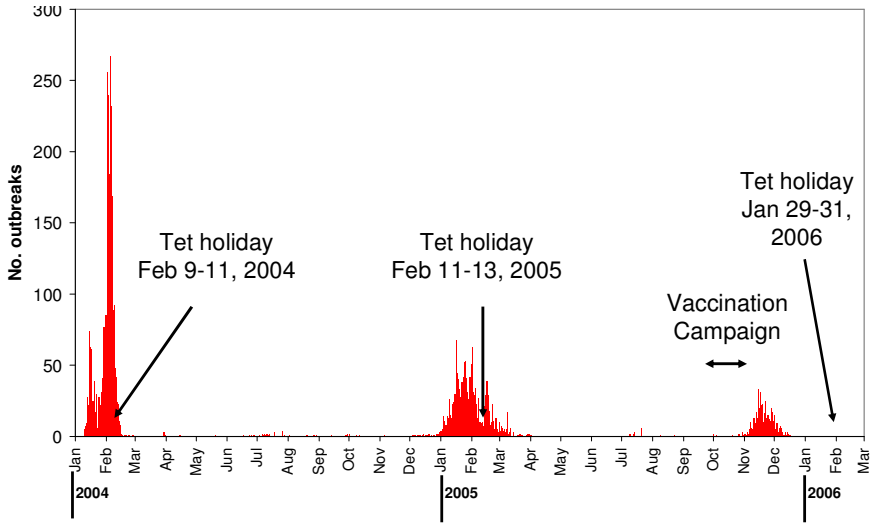
1. Current Status of HPAI in Viet Nam (as of 20 August 2006)

After the first confirmed cases in Viet Nam in December 2003, the disease was detected throughout the country. In general, since the start of the epidemic up to date, there were three major waves of epidemic (Figure 1). The first wave which started mid-December 2003 and ended late February 2004 reached it peak on 6 February 2004 where 24 percent of communes and 60 percent of towns were affected. Up to the end of February 2004, about 17 percent of the poultry population died or were culled.

There were more scattered outbreaks occurred until November 2004, in which month only one new case was reported in poultry. Then a second wave, continuing until April 2005, affected 670 communes. From April to December 2005 (peak of the third wave), there were 276 infected communes in 28 provinces and approximately 3.7 million culled birds. No new outbreaks in poultry have been reported for over 4 months since the last outbreak reported on 15 December 2005 in Cao Bang Province.

From the very start of the epidemic in December 2003, human cases of AI infection were recorded. Viet Nam has reported the highest number of human cases in any country by a significant margin. As of end of December 2005, Viet Nam's human toll has been 93 cases, including 42 deaths. Overall, 32 provinces and municipalities have reported human infections, with a concentration around the Red River Delta provinces in the north and the Mekong Delta Region in the south, matching the distribution of poultry outbreaks.

Figure 1: Temporal Pattern of 2003/4 (1st), 2004/5 (2nd) and late 2005 (3rd) AI Epidemics



The direct impact of the AI epidemic is estimated to about 0.12 percent of GDP in 2004. This represents the net effect of the negative impacts on the poultry sector compensated to some extent by the increase in substitute livestock production. The impacts, however, are unevenly distributed as income for poultry and eggs is more important among the poorest part of the population.

2. Control and prevention strategies

a. Strong Political commitments and transparency

The *National Committee for Avian Influenza Disease Control and Prevention* was established in January 2004 [Decision No 13/2004/QD-TTg, dated 28/1/2004] as the national coordination mechanism for HPAI planning and supervision. It is chaired by the Minister of Agriculture and Rural Development. Ministries of Health, Public Security, Transportation, Trade, Foreign Affairs, Culture and Information, Science and Technology, and Natural Resources and Environment are members. This Committee is meeting on a weekly basis to brief the Government on the evolution of the disease situation and report on the implementation of the control measures. The Prime Minister and Deputy Prime Minister have chaired

several of these meetings. The National Committee has also been entrusted with the responsibility for Government – Donor coordination and has met several times over the last six months with the International Community.

Policy measures adopted by MARD follow the FAO/OIE Global Strategy and propose aggressive control measures for Viet Nam through the deployment of the conventional control methods of culling, bio-security and movement control, combined with strategic vaccination of domestic poultry and ducks. Other measures include raising public awareness, strengthening diagnostic capacity, enhancing research capability, imposing a temporary ban on hatching of ducks, and carrying-out an epidemiological surveys to understand the route of transmission as well as the role of wild birds. In addition, for the long term success of the strategy, the restructuring of the poultry industry has to be considered.

b. Technical measures to control AI in poultry

- *Rapid destruction of infected birds and birds in the high risk areas*

With the strong commitments of the political systems from Central to grassroots levels, the policy for rapid destruction of infected birds was employed at the early days of the outbreak. Compensation to farmers warrants special attention. Following the recommendation of a study on compensation and related financial support to farmers, the Government support level for compensation for birds culled during the stamping-out of outbreaks has been raised from 10-15 percent of the market value of the poultry slaughtered in 2004 to a level of 50 percent in June 2005 (VND 15,000 per bird), to be equally shared between central and provincial contingency budget. In addition, the Government is considering introducing a "categorized system" for compensation.

- *Disinfection of infected areas*

Infected premises were disinfected using standard chemicals. The Central Government subsided funds for buying disinfectants while the local governments provided daily allowances for people carried out the job. Many engine sprayers were purchased and distributed to provinces.

- *Control of poultry movement*

The infected areas were quarantined for the period of 21 days. Roads around the infected commune were blocked for the quarantine duration.

- *Strengthening disease surveillance systems*

HPAI has been put under a national surveillance and monitoring programme which covers both clinical and laboratory surveillance. The early warning system by closely surveillance and monitoring disease situation at grassroots (villages and farms) level has been established. Community Animal Health Workers were paid allowances to be vigilance at villages. Due to the limited laboratory capability available in Viet Nam, the clinical surveillance programme takes a key role in monitoring for HPAI. Commune Animal Health Workers have been utilized as 'eyes and ears on the ground' of the public Veterinary Services. These human resources are responsible for field surveillance and monitoring at village level. Suspected cases shall be reported to the District Veterinary Station and this will trigger an outbreak inspection.

With the aim of improving the information management for emerging diseases and HPAI in particular, Viet Nam is customizing the FAO-provided TADinfo Animal Transboundary Disease Information System (web-based version) to use for HPAI reporting. This program will take full advance of all the possibilities offered by the latest information and communication technology, including mapping software.

Capability of diagnostic laboratories has been strengthened. Prior to the 2003/4 HPAI epidemic, there was no laboratory in Viet Nam capable of diagnosing HPAI. However, since the start of the epidemic, Viet Nam's national laboratories have received a number of supports from international technical and development agencies. At present there are 9 national and regional laboratories are capable of doing HPAI diagnoses with different techniques. While staff of the National Centre for Veterinary Diagnosis received technical support on HPAI diagnostic techniques by CDC's experts (Center for Disease Control and Prevention, USA), staff of HCMC RVC were trained by experts from AAHL (Australian Animal Health Laboratory).

- *Public awareness*

Many campaigns have been launched with the aim of raising public awareness on HPAI prevention and control and facilitating the participation from different stakeholders. Public organizations such as Farmers' Association, Farther Land Front, Youth Union, and Women's Union have actively participated in

the fight against the disease. From 9 August 2004 to 9 September 2004 a "HPAI Month Action" was implemented. More than 500,000 leaflets and 70,000 booklets on HPAI disease prevention and control were printed and distributed to provinces and cities. National and local television stations broadcasted several programs on HPAI situation and provided guidelines for disease control and prevention. Newspapers have been provided with daily progress of the epidemic.

- *Strengthening international cooperation*

HPAI has been considered as a severe transboundary zoonosis and has drawn a great deal of attentions from international community. So far, Viet Nam has received various kindly supports from many international organizations and donor countries. On the donors' side, the EU Presidency, represented by the Royal Netherlands and United Kingdom Embassies in 2005, has assumed a coordinating role. With strong support from WHO and FAO, the EU has organized regular technical meetings as well as briefings for the donor community, NGOs, and representatives of the private sector. On the request of the Government, donor coordination is now also enhanced by a Joint Government-UN Program (entitled "*Strengthening the Management of Public Health Emergencies in Viet Nam – with focus on prevention and control of diseases of epidemic potential including HPAI*") established in September 2005 under the leadership of the National Steering Committee for HPAI to provide assistance for HPAI control and to support the preparation and implementation of the national human epidemic preparedness plan. This program, implemented by FAO, UNICEF, UNDP and WHO, has received financial support from the Governments of Australia, Canada, Finland, Luxembourg, the Netherlands, Sweden, Switzerland and United Kingdom, and is therefore playing a key role in donor coordination (Figure 2).

Figure 2: Donor support to HPAI control in Viet Nam

Donors	Amount (US$ equivalent)	Activities
I. Grants from donor community for Avian Influenza		
Government of China	125,110	2004, Protective equipment and disinfectants
Government of Korea	30,000	2004
Government of Denmark	1,500,000	Support from ASPS Program
Government of United Kingdom (DFID)	1,461,978	Equipment and disinfectants
Government of New Zealand	250,000	2005 - Equipment and disinfectants
Government of New Zealand	136,000	Provincial level activities (thru CARE International)
Government of Germany (GTZ)	60,000	Equipments
Government of Germany	4,500,000	Equipment support for EWARS (thru WHO)
Government of the Netherlands	18,510	2004/05 - Upgrading health care isolation facilities
Government of Australia (AusAID)	15,900	2004 - Equipment (thru WHO)
Government of Japan	401,750	OSRO/RAS/401/JPN (thru FAO)
Government of Japan	1,774,000	JSDF Grant (thru World Bank-funded AIERP)
Government of Japan (JICA)	4,000,000	MOH - BSL3 Laboratory
Government of the Luxembourg	60,990	2004/05 - Enhanced influenza surveillance (thru WHO)
Government of France	100,000	2004 - Technical Assistance (MARD)
Government of France	620,000	Support to *Institut Pasteur (MOH)*
Government of Italy	122,549	2004/05 - IEC, Research (WHO)
Government of the United States of America	2,634,000	Education, training and equipment
USAID Grant through AED	1,000,000	Public communication activities (IEC)
Sub-total	**17,810,787**	
II. Grants from multilateral and international		
ADB	50,000	Protective clothes
ADB	15,000	2004 - PPE and disinfection equipment (thru WHO)
EC	945,274	2204 - Equipment (thru WHO)
EC	969,363	Training, equipment and antival drugs (thru WHO)
FAO	387,979	TCP/VIE 3003
WHO	25,000	Sprayers, multi-protective clothes
Sub-total	**2,392,616**	
III. Grants supported through the joint UNDP program (UNDP/FAO/WHO/UNICEF signed October 13, 2005)		
Finland	3,209,384	
Netherlands	1,175,000	
Australia	750,000	
Switzerlands	399,980	
Canada	854,701	
Luxembourg	605,327	
DFID (UK)	119,927	
UNDP	70,000	
Sweden	510,856	
Sub-total	**7,695,175**	
IV. Others		
World Bank - Avian Influenza Emergency Recovery	5,000,000	Signed August 27, 2004 (Cr. 3969-VN)
World Bank - National Health Support Project	13,000,000	Reallocation of funds (Cr. 2808 - VN)
Sub-total	**18,000,000**	
TOTAL[1/]	**45,898,578**	

- *Vaccination*

Upon the disease status in late 2005 and in the light of experiences and new knowledge, Viet Nam decided to use vaccination as an additional control measure for HPAI. Some types of bird flu vaccines have been tested on a limited scale in early 2004, and the Ministry of Agriculture and Rural Development (MARD) approved the National Plan of Using Vaccination for Control and Eradication of HPAI in Viet Nam for the period 2005-2006. Under this plan the Government of Viet Nam provides US$15.3 million, mostly to cover the cost of vaccines while logistic costs for vaccination will be borne by local governments. The first nationwide mass vaccination was started in September 05 and completed the end of December 05.

So far, no outbreaks of disease have been detected in fully vaccinated poultry and no new cases have been seen in poultry or humans since the two rounds of vaccination were completed. The third wave of cases was curtailed and it is pertinent to note that all cases of disease in this wave occurred in poultry that were deemed ineligible for vaccination (e.g. short lived broilers). It would be simplistic to attribute all of these improvements to vaccination alone as other measures were also introduced, including closure of live bird markets and bans on hatching of ducks, and the demand for poultry has fallen reducing poultry numbers. Nevertheless, it is likely that vaccination has played a significant role in this reduction in the number of reported cases of disease.

The vaccination campaign for 2006 has started in February 2006 for the targeted areas. While 33 provinces out of total 64 provinces in the countries are subject of compulsory vaccination, there rest are encouraged to have their poultry vaccinated in areas considering as with moderate to high risk.

- *Re-structuring poultry production*

Commercial and semi-commercial poultry raising and hatching establishments have been gradually moved away from residential areas. Poultry in small holders has to be kept separate from human's houses and be kept in sheds or confined in fenced areas; free-ranging of waterfowls is prohibited; the practice of raising chickens with waterfowls is prohibited. The overall programme "Re-structuring poultry industry for the period 2006-2010" was developed by MARD and forward for Government's endorsement.

- *Re-planning the poultry slaughtering and marketing systems*

It is planned to encourage the private sector to build up intensive slaughterhouses in cities with preferable conditions such as providing land, low-interest loans. Slaughter-points in urban areas which do not meet certain veterinary hygiene conditions were banned from operating. The sale of birds in live markets in urban areas is restricted.

3. Major challenges

Avian influenza presents the animal and human health sectors with new challenges. Its epidemiology, with a long lead time of poultry infection prior to a potentially explosive human epidemic, combined with household economic dependence on backyard poultry raising, make it more complicated than other, emerging infectious diseases, including SARS. Experience of the HPAI epidemic in Viet Nam over the past two years have highlighted the following challenges:

- Avian influenza control is multi-sectoral in nature.
- The livelihoods of the rural poor are particularly threatened.
- Control strategies must include awareness raising and public information and behavior change campaigns.
- An appropriate balance between short- and long-term actions is needed.
- The response to HPAI needs to build in mechanisms which develop and share new knowledge about the disease.
- Regional collaboration is critical.

4. National Strategic Plans

The *National Preparedness Plan in Response to Avian Influenza Epidemic H5N1 and Human Influenza Pandemic* was approved by the Prime Minister on November 18, 2005 (Decision No. 6719/VPCP-NN). This integrated plan, prepared by the National Steering Committee for Avian Influenza Prevention and Control, includes the responsive measures under three epidemic phases and scenarios, and allocates responsibilities and actions for fourteen ministries, as well as People's Committees at all levels and mass organizations.

Animal Health Plan. An *Emergency Disease Contingency Plan for Control of Highly Pathogenic Avian Influenza in Viet Nam* was approved by the Ministry of Agriculture and Rural Development on December 5, 2005 (Decision No. 3400 QD/BNN-TY) and constitutes the basis for the national veterinary services to develop their own strategy to control HPAI. This plan includes the establishment of HPAI disease control centers as well as a series of technical guidelines to respond to and control HPAI, to destroy and dispose of affected poultry, to disinfect premises, and to improve disease control activities for poultry traders, transporters, processors and small-scale poultry farms.

Human Health HPAI Preparedness Plan. A *National Plan of Action on Human Influenza Pandemic Prevention and Control in Viet Nam* was approved by the Ministry of Health on November 24, 2005

(Decision No. 38/2005/QD-BYT). It addresses all the core areas in HPAI response, including surveillance and early warning systems, risk communication for the public and health care workers, border control and social distancing, and preparing the curative care system. Different responsibilities and interventions are outlined for different phases of an epidemic, under the guiding principle that HPAI preparedness and response should also strengthen the health system's capacity to respond to other zoonoses and emerging infectious diseases in the medium term.

Integrated National Operational Work Programme for Avian Influenza Control and Human Pandemic Preparedness and Response 2006-2008. The overarching objective of the Integrated National Plan is to reduce the health risk to humans from avian influenza by controlling avian influenza at source in domestic poultry, by early detecting and responding to human cases, and by preparing for the medical implication, consequences of a pandemic within the next 3 years.

The Government of Viet Nam had presented the first version of this plan (so-called the "Red Book") at the Beijing International Pledging Conference on Avian and Human Pandemic Influenza (17-18 Jan 05). Following this conference, relevant ministries in Viet Nam have jointly prepared for the plan. The workshop on the National Strategic Plan for HPAI Control and Eradication in Viet Nam was jointly conducted by MARD and FAO from 27-28 Feb 06. At the time of reporting, the Joint Assessment Mission led by WB is evaluating AI control efforts in Viet Nam and assisting in developing the plan (so called the "Green Book").

Over three hundreds USD would be needed to implement the Integrated National Operational Work Programme for Avian Influenza Control and Human Pandemic Preparedness and Response 2006-2008. Most of the necessary financial inputs are expected to be sought from international donors.