

ASIAN DEVELOPMENT BANK

**AVIAN INFLUENZA
AND THE RISK OF AN INFLUENZA PANDEMIC**

March 2005

ABBREVIATIONS

ADB	–	Asian Development Bank
ASEAN	–	Association of Southeast Asian Nations
CFA	–	cofinancing agreement
CDC	–	United States Center for Disease Control and Prevention
DMC	–	developing member country
FAO	–	Food and Agriculture Organization
HCMC	–	Ho Chi Minh City
HPAI	–	highly pathogenic avian influenza
OIE	–	World Organization for Animal Health
PRC	–	People's Republic of China
SARS	–	severe acute respiratory syndrome
SEARO	–	WHO's Regional Office for Southeast Asia
TA	–	technical assistance
WHO	–	World Health Organization
WPRO	–	WHO's Regional Office for the Western Pacific

NOTE

In this report, "\$" refers to US dollars.

CONTENTS

	Page
I. INTRODUCTION	1
II. BACKGROUND INFORMATION	1
A. What is Influenza?	1
B. Why be concerned?	2
III. RESPONDING TO THE THREAT	3
IV. ADB SUPPORT TO MEMBER COUNTRIES	4
V. PRIORITIES AND STRATEGIC GOALS	4
VI. ADB PROGRAM	5

I. INTRODUCTION

1. A recent series of reports in the international and regional media¹ about the bird flu, or avian influenza, is raising questions and concerns about the risks of this disease for human health and its potential impact on the social and economic development of the communities and countries affected. Media reports on avian influenza refer to Thailand, Viet Nam, Cambodia, and more recently Indonesia. But why is the World Health Organization (WHO) so concerned by a disease of the poultry?² Why does the head of the US Center for Disease Control and Prevention (CDC Atlanta), declare that there is a real risk of Asia's bird-flu problem transforming into a global threat? This information paper provides some background information on avian influenza, why this disease of the poultry is of such concern for human health, and what role ADB could play to assist its member countries.

II. BACKGROUND INFORMATION³

A. WHAT IS INFLUENZA?

2. Human influenza (flu) is caused by a virus that attacks mainly the respiratory tract (nose, throat, bronchi). Most people recover easily within one to two weeks but in the very young, the elderly and people with some chronic diseases, influenza poses a serious risk. Influenza spreads rapidly around the world in seasonal epidemics, and imposes a considerable economic burden (health care and lost productivity). In the USA for example, recent estimates put the cost of an influenza pandemic at \$71-167 billion.⁴ For most people affected, influenza will last several days but requires only symptomatic treatment. Antibiotics cannot attack the virus, and are used only to treat complications. Antiviral drugs now exist that are useful adjuncts to influenza vaccine for the treatment and prevention of influenza.

3. The annual epidemics of influenza are due to minor changes in the virus, which allow it to escape the immunity that humans have developed after previous infections or vaccinations. Laboratory-based surveillance of the virus facilitates regular update of vaccines based on the most recent strains of the virus. But when a major change occurs in the virus, no one will have immunity against the infection because it is a completely new virus. If this new virus has also the capacity to spread from person-to-person, a pandemic will occur.

4. Avian influenza, or bird flu, is caused by viruses that normally infect only birds (including chicken, ducks, geese, quails and wild birds), and, less commonly, pigs and other mammals. Domestic poultry are especially vulnerable to infection that can rapidly reach epidemic proportions. The disease in birds has two forms, a mild illness barely noticed and a "highly pathogenic avian influenza" (HPAI), which is extremely contagious and rapidly fatal for the birds. Mutations or reassortment of the bird flu virus into new and more aggressive strains occur regularly and have already caused several severe avian flu outbreaks in the past, some of them causing human fatalities. In 1997 in Hong Kong, China, 18 people were infected and 6 died, and in the Netherlands in 2003 several people were infected and one died. In both cases as well as

¹ For example, in the BBC on-line on 28 Feb. 2005 (<http://news.bbc.co.uk/2/hi/health/4295649.stm>), the Financial Times/Asia (2 March 2005) and the Asian Wall Street Journal (4 March 2005).

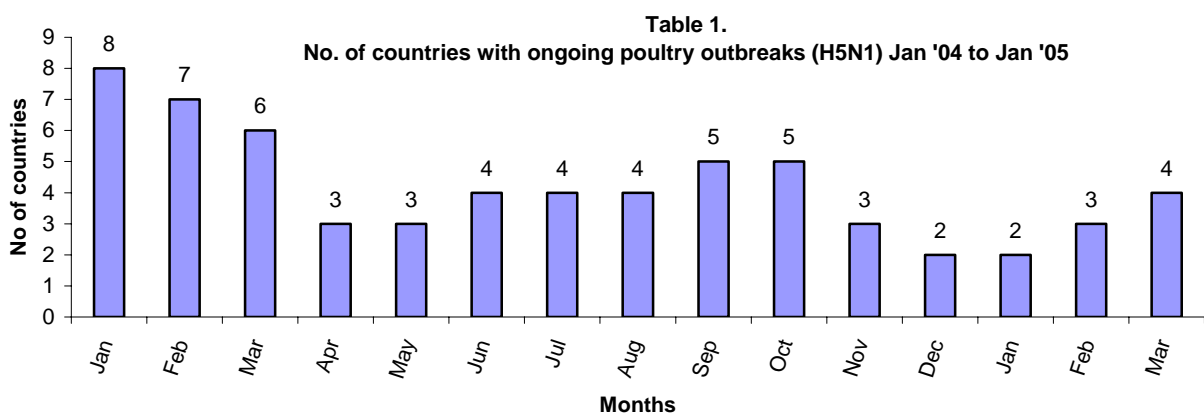
² The WHO Regional Director for the Western Pacific Region declared recently (23 February 2005): "the world is now in the gravest possible danger of a pandemic" (Asian Wall Street Journal, March 4-6, 2005).

³ This chapter is largely based on information available on the WHO web-site <http://www.who.int/mediacentre>

⁴ WHO Fact sheet No. 211 <http://www.who.int/mediacentre/factsheets/fs211/en>. Martin I. Meltzer and coll. *The Economic Impact of Pandemic Influenza in the United States: Priorities for Intervention*. Emerging Infectious Diseases, Vol. 5, No. 5, September-October 1999.

in other similar outbreaks, spread of the virus was stopped by immediately culling the whole population of infected chickens.

5. The present avian flu outbreak caused by the H5N1 strain, which first appeared in Hong Kong, China in 1997, started in December 2003 and was identified last year in the People's Republic of China (PRC), Japan, Lao PDR, Malaysia, South Korea, and 4 countries where it is still present: Cambodia and Indonesia, Thailand and Viet Nam (see table 1). While in January 2005, only Thailand and Viet Nam were reporting avian flu, new outbreaks have since affected Cambodia and most recently Indonesia.



B. WHY BE CONCERNED?

6. Since 2003, tens of millions of poultry may have died or been culled, but the bird flu has killed only 42 (official WHO figures) to 46 (unofficial reports) persons as of 28 February 2005. While the microeconomic impact of the avian flu epidemic can be severe among farmers with little access to safety nets because of the losses from chicken deaths and culling, the economic impact at the macroeconomic level is expected to be minor.⁵ However, this will be true only if avian flu remains confined to animals. But another scenario is possible, where the avian influenza H5N1 virus mutates, is passed directly from human to human, and becomes responsible for a pandemic.

7. The greatest influenza pandemic occurred in 1918-1919, responsible for 40-50 million deaths worldwide. Today, vaccines, antibiotics and antiviral drugs are available. Still, WHO and the CDC estimate that a pandemic is likely to result in 2 to 8 million deaths globally, with a very high economic cost, particularly for low income countries where health care resources are already constrained. If an influenza pandemic starts, WHO warns:

- Given the global traffic, the virus may spread rapidly, leaving little or no time to prepare.
- Vaccines, antiviral drugs and antibiotics will be in short supply and unequally distributed. It will take several months before any vaccine becomes available.

⁵ Asian Development Bank. ERD Policy Brief No. 24. *Avian Flu: An Economic Assessment for Selected Developing Countries in Asia*. Manila March 2004.

- Medical facilities will be overwhelmed. Widespread illness may result in shortage of personnel to provide essential community services.

8. From January 2004 until 28 February 2005, human cases with a high fatality rate (percentage of deaths among those affected) have been reported in Thailand (17 cases – 12 deaths), Viet Nam (37 cases – 29 deaths), and Cambodia (1 case – 1 death), i.e., a total of 55 cases with 42 deaths. This is insignificant compared with the great number of birds infected and the wide geographical area involved, reflecting the very poor “efficiency” of the virus to affect humans. Only small farmers with chickens in their backyard seem to have been infected, with only one possible case of transmission of the virus between humans in Thailand⁶.

9. There is however no place for complacency. H5N1 is an aggressive virus that mutates unpredictably and has shown its capacity to jump from one species to another (from birds to humans), and it has now been present for more than a year in a wide geographic area with many people, poultry and pigs, the “right formula for the emergence of new flu strains”, in the words of Dr. Gerberding, head of the CDC.

III. RESPONDING TO THE THREAT

10. With the 2003 severe acute respiratory syndrome (SARS) outbreak in mind, the region rapidly reacted to the threat, and the United Nation technical agencies concerned have provided leadership in formulating a response to avian influenza. On 3-4 February 2004, the Food and Agriculture Organization (FAO) hosted a joint emergency meeting on avian influenza in Rome with WHO and the World Organization for Animal Health (OIE). The 2-day meeting set policies and strategies for controlling the disease and addressing the animal as well as public health concerns. On 26-28 February 2004, the Government of Thailand organized a first emergency regional meeting in Bangkok, in collaboration with FAO, OIE and WHO. FAO issued guiding principles for the containment of avian influenza in July 2004. Follow-up meetings of ASEAN and ASEAN + 3 health ministers in Penang, Malaysia (April 2004) and in Bangkok, Thailand (November 2004) helped strengthen regional coordination. The health ministers of the region committed themselves to strengthen surveillance response systems for early recognition and prompt containment of emerging infectious diseases; to mobilize required resources to strengthen disease surveillance and response systems; to strengthen international and regional collaboration on all aspects of the avian influenza response; and to promote collaboration between institutions and sectors involved in the response to the outbreak.

11. Most recently, a Second FAO/OIE Regional meeting on Avian Influenza Control in Asia took place in Ho Chi Minh City (HCMC), Viet Nam, on 23-25 February 2005.⁷ WHO Regional Director for the Western Pacific Region attended the meeting, and highlighted the increasing risks of a new influenza pandemic. The HCMC meeting noted that the ongoing second wave of avian influenza was slightly broader but was brought more quickly under control. Strengthening the surveillance and response systems, both for animals and human, was ongoing and had to be pursued. There was no epidemiological justification to cull wild birds, but in the longer term, poultry farming – and in particular biosecurity⁸ – had to improve. The major concern was the

⁶ A second possible case of human transmission in Vietnam in March 2005 is still under investigation.

⁷ http://www.fao.org/ag/againfo/subjects/en/health/diseases-cards/avian_vietnam05.html

⁸ “Biosecurity is a strategic and integrated approach that encompasses the policy and regulatory frameworks that analyze and manage risks in the sectors of food safety, animal life and health, and plant life and health, including associated environmental risk.” (FAO, Committee on Agriculture, 17th session, Rome 31March-4April 2003.)

mutations of the H5N1 virus and the real risk – though difficult to quantify – of a human influenza pandemic that would have a major economic and social costs for the region and the world.⁹

IV. ADB SUPPORT TO MEMBER COUNTRIES

12. In close collaboration with WHO, ADB rapidly reacted with a series of initiatives to help developing member countries (DMCs) control SARS. The SARS outbreak in 2003 revealed weaknesses in epidemiological surveillance and in the preparedness of the health care services to respond to SARS and other highly contagious diseases in several countries. Because the fundamental need for stronger epidemiological surveillance and health care services preparedness also applies to avian influenza, actions taken to respond to SARS also affected the respective countries' capacity to deal with avian influenza. These include:

- A Memorandum of Understanding between WHO and ADB was signed on 18 June 2003 by ADB's President and WHO Director General outlining areas for cooperation and coordination on SARS and emerging diseases.
- An advisory technical assistance (TA) was provided to PRC¹⁰ for strengthening surveillance of disease outbreaks, emergency response systems, and an information-education campaign, focusing on the western region of PRC.
- A regional TA (TA 6108)¹¹ allowed initially for DMCs to apply for funds to strengthen national capacity for surveillance and control of SARS and other emerging communicable diseases. Subsequently, additional funding from the Japan Special Fund was used to establish a regional "disease outbreak response team" comprising four long-term consultants based at WHO's Western Pacific Regional Office (WPRO) in Manila. The team has traveled to areas of reported avian influenza on numerous occasions to assist local WHO and national offices.

13. When avian influenza started spreading in the region in early 2004, the resources of TA 6108 were used with new emphasis on avian influenza for training, equipment and supplies, surveillance and screening, information and education campaigns, and technical support.¹² Allocations of up to \$200,000 have been made to 15 countries and about \$400,000 to South Pacific countries. The specific activities under the TA were decided by each country in close consultation with WHO.

14. In December 2003, a Memorandum of Understanding was signed between ADB and the International Cooperation and Development Fund (Taipei,China), which made available an additional \$500,000 equivalent for regional capacity building in disease surveillance and response preparedness in June 2004.

V. PRIORITIES AND STRATEGIC GOALS

15. Influenza experts agree that another pandemic is likely to occur but are unable to say when. The characteristics of a future pandemic virus cannot be predicted. Nobody knows how pathogenic a new virus would be. But most agree that even in the most conservative scenario,

⁹ ADB participated in the meetings in Bangkok (February and November 2004) and the recent meeting in HCMC.

¹⁰ ADB. 2003. Technical Assistance to the People's Republic of China for Combating Severe Acute Respiratory Syndrome in the Western Region. Manila (approved on 22 May for \$2,000,000).

¹¹ ADB. 2003. Technical Assistance for Emergency Regional Support to Address the Outbreak of *Severe Acute Respiratory Syndrome*. Manila (for \$2,000,000, with an additional \$3,000,000, approved on 29 September 2003).

¹² Minor change in Scope for TA 6108 approved on 28 January 2004.

millions will be affected within a very short period. WHO is strongly advocating influenza pandemic preparedness planning.¹³ The objectives are to enable countries to be better prepared to recognize and manage an influenza pandemic; to reduce the transmission of the pandemic virus; to decrease cases; hospitalizations and deaths; to maintain essential services; and to reduce the social and economic impact of an influenza pandemic.

16. In response to the HPAI situation, WHO has identified three strategic goals:
1. To avert an influenza pandemic.
 2. To minimize the human health impact of current outbreaks.
 3. To conduct the research needed for better preparedness and response.

At the country level, these strategic goals must be translated into action plans with specific objectives, to enhance disease surveillance and response preparedness.

17. Because the virus responsible for the ongoing avian influenza epidemic has the potential to mutate and become the agent of a human influenza pandemic, controlling the bird flu is a priority not only for FAO and OIE, but also for WHO. The bird flu however will be “difficult to eradicate because the virus has become established in certain environments and host species (including in wild and farmed ducks)” (FAO). Indonesia and China have reported some success with vaccination, and Vietnam will start vaccinating duck flocks in April. However, vaccination is only part of a broader strategy that must include improving early detection and response to outbreaks, and strengthened cooperation at national and regional levels. Long-term investments in the poultry sector are required to improve farming, biosecurity and veterinary capacity.

18. For the control of infection in humans, influenza pandemic preparedness needs to be strengthened rapidly. Planning is the first step, but skilled staff, supplies (antiviral drugs), laboratories and private sector companies (to develop vaccines for new influenza strains) and emergency financial resources must also be readily available. Health services also need to improve their readiness to answer a possible human influenza outbreak.

VI. ADB'S FUTURE INVOLVEMENT

19. With its DMCs fighting the avian flu and considering the real risk of a human influenza pandemic starting in the region, ADB has a role to play in supporting efforts to control avian influenza and increase preparedness for human influenza. As close coordination and cooperation among countries and concerned agencies is required, ADB acknowledges the UN technical agencies' leadership and guidance for the control of avian influenza in livestock (FAO in collaboration with OIE) and in humans (WHO).

20. ADB does not have major activities in the animal health and livestock sectors.¹⁴ The impact of avian flu on poor farmers' and households' incomes, as well as its potential impact on human health and the social and economic development of the region require an in-depth assessment of the need for ADB to increase its support in these areas. There is a need for improving farming practices, biosecurity, outbreak risk analysis and other priorities in the sector through technical assistance, microcredit or rural development projects, which ADB may be able to support, but this will require reallocation of funds and new human resources. ADB will engage an expert to determine the needs of DMCs in the animal health and livestock sectors, to assess

¹³ WHO – <http://www.who.int/csr/resources/publications/influenza> and <http://www.who.int/csr/disease/influenza>: WHO Checklist for Influenza Pandemic Preparedness Planning. March 2005 (Document available on request).

¹⁴ The only project in these sub-sectors is RETA 6192: *Transboundary Animal Disease Control in the greater Mekong Subregion*, for \$1.0 million, approved on 11 Oct 2004.

whether ADB should increase its involvement in the sector, and, if so, what kind of support ADB should provide.

21. In the health sector, ADB's experience with SARS in 2003 and the working relations that have since developed between ADB and WHO facilitate rapid and effective interventions. Based on regular consultations with the WHO headquarters in Geneva (Department of Communicable Disease Surveillance and Response and the Global Influenza Program) and with the WHO regional offices for the Western Pacific (WPRO based in Manila) and for South Asia (SEARO based in New Delhi), a two-pronged strategy is appropriate, namely (i) to answer emergency needs at the country level, and (ii) to help strengthen disease surveillance and response preparedness both at the country and the regional level.

22. For countries with emergency needs, part of the TA 6108 resources will be made available on request of the governments and after consultation with WHO.¹⁵ The resident missions will continue coordinating ADB assistance to the governments in collaboration with the WHO local representatives and other local partners, with support from ADB headquarters (Regional Departments and RSDD).

23. Strengthening disease surveillance and response preparedness requires longer-term investments and support at the country and the regional levels. A systematic needs assessment at the country level has already started with the support of the ADB-financed team of consultants based in WPRO (see paragraph 12). These assessments are necessary to help countries develop their disease surveillance and response preparedness plans. Once these plans have been approved, ADB could, in coordination with other donors, finance their implementation using TA grants, ADF IX grants, or other resources, as appropriate. The Country Strategy and Program (CSP and CSPU) missions will have to consider the needs and determine the level of ADB assistance required. In this context, two upcoming projects, the Viet Nam preventive health system support project and the GMS regional communicable disease control project will specifically address capacity building for surveillance and response systems.

24. At the regional level, resources will also be made available to strengthen regional capacity, particularly in disease surveillance, sharing of information and regional networking. Three types of activities have been identified in consultation with WHO: (i) strengthening the disease surveillance and response preparedness teams based in the WHO regional offices; (ii) developing and strengthening a regional capacity building and information sharing network; and (iii) strengthening the links between the region and WHO headquarters, in the context of global surveillance and preparedness for emerging diseases.

25. A WHO-ADB joint review mission will evaluate the ADB-financed team for surveillance and response preparedness based in WPRO, and identify possible new mechanisms and implementation arrangements that could improve effectiveness and efficiency. ADB-financing of a similar team or consultant based in SEARO is also under consideration.

26. Countries in the region have accumulated experience in fighting emerging diseases such as SARS and avian influenza. Facilitating sharing of information and expertise, and strengthening regional collaboration in regional, transborder interventions will benefit all DMCs. In previous ASEAN/ ASEAN+3 meetings, Thailand has agreed to develop and share capacity in field epidemiology and surveillance, and Malaysia offered to coordinate regional capacity building in laboratory expertise. Regular training activities in the region can be developed and

¹⁵ Some \$500,000 for training and capacity building activities, and some \$200,000 for equipment and supplies.

institutionalized, with different centers responsible for different fields of expertise. Contacts have already been established between ADB and various ministries of health and institutions (including the World Bank Institute). An expert will be engaged to identify options and mechanisms to develop a regional capacity building network, make appropriate recommendations, and finalize a project proposal. While some components of this proposal may be financed using available resources, additional resources may be required and ADB will explore options to mobilize new resources as appropriate.

27. There is also a need to better integrate the Asia-Pacific region in the global disease surveillance and response preparedness network. Most countries in the region are willing to send domestic experts to WHO Geneva to expose them to international expertise and develop networking. ADB could support, on a selective basis, secondment of DMC experts to WHO headquarters if requested to do so.