



# Report and Recommendation of the President to the Board of Directors

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Project Number: 39662  
March 2006

## Proposed Grant Assistance Asia and the Pacific Region: Prevention and Control of Avian Influenza in Asia and the Pacific

## ABBREVIATIONS

ADB	–	Asian Development Bank
ADF	–	Asian Development Fund
AIREF	–	Avian Influenza Response Facility
ASEAN	–	Association of Southeast Asian Nations
CDC	–	Communicable Disease Control (Project)
DALY	–	disability-adjusted life year
DMC	–	developing member country
FAO	–	Food and Agriculture Organization of the United Nations
GMS	–	Greater Mekong Subregion
GOARN	–	Global Outbreak Alert and Response Network
JSF	–	Japan Special Fund
OIE	–	World Organization for Animal Health
PRC	–	People’s Republic of China
RSDD	–	Regional and Sustainable Development Department
SARS	–	severe acute respiratory syndrome
SPD	–	Strategy and Policy Department
TA	–	technical assistance
TASF	–	Technical Assistance Special Fund
UNICEF	–	United Nations Children’s Fund
WHO	–	World Health Organization

## GLOSSARY

case fatality rate	–	The percentage of infected patients who die as a result of the infection
H5N1 avian influenza virus	–	A strain of highly pathogenic avian influenza virus circulating and considered by WHO as a serious candidate to cause a human influenza pandemic
life years lost	–	The number of years of life lost because of ill health, compared to the potential life expectancy
pandemic	–	A global epidemic
public good	–	A good that is difficult to produce for private profit because the market fails to account for its large beneficial externalities. Everyone can benefit from it and it is difficult, if not impossible, to prevent access.
zoonosis	–	An animal disease communicable to humans under natural conditions

## NOTE

In this report, "\$" refers to US dollars and “€” refers to Euros.

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## GRANT AND PROJECT SUMMARY

<b>Grantees</b>	Participating developing member countries (DMCs) of the Asian Development Bank (ADB), and the Food and Agriculture Organization (FAO), the World Health Organization (WHO), and the Association of Southeast Asian Nations (ASEAN) Secretariat, for the benefit of participating DMCs.
<b>Beneficiaries</b>	Participating DMCs.
<b>Classification</b>	Targeting classification: Targeted intervention, Millennium Development Goal 6. Sectors: Health, nutrition, and social protection; agriculture and natural resources Subsectors: Health programs, livestock Themes: Regional cooperation, capacity development
<b>Environment Assessment</b>	Category C.
<b>Project Description</b>	<p>The Project is part of an international effort to respond to the threat of highly pathogenic avian influenza and to prepare for a human influenza pandemic, thereby mitigating potentially major social and economic disruptions in Asia and the Pacific.</p> <p>The Project will focus on regional activities and support international agencies that are active regionally and nationally to prevent and control the H5N1 avian influenza. The Project will be open to all eligible DMCs that might need emergency or additional support for the avian influenza epidemic.</p> <p>The Project has four components, to be implemented over 2.5 years: (i) regional capacity building, (ii) regional coordination, (iii) avian influenza response facility, and (iv) project management. Given the need for flexibility and rapid response, subprojects will be developed during project implementation according to the needs.</p> <p>The Project, implemented in close coordination with other national and international initiatives, will improve capacity for regional surveillance and regional and national response to emerging diseases.</p>
<b>Rationale</b>	The potential impact of an influenza pandemic is substantial and could halt economic growth and poverty reduction. Experts fear that the highly pathogenic avian influenza virus A H5N1 may mutate and cause a human influenza pandemic. All countries are at risk. Addressing the risk or at least reducing the potential impact of an influenza pandemic is a regional public good. The Project will contribute to overall efforts to combat avian influenza and other emerging diseases. It will fill an important niche by

supporting coordination and regional activities. The Project will help establish systems to prevent and control emerging diseases, which will be useful even if the epidemic does not escalate.

## Impact and Outcome

The Project aims to help significantly control and reduce the spread of H5N1 avian influenza among poultry, and increase the region's preparedness for a potential human influenza pandemic, thereby preventing or mitigating social and economic disruptions in Asia and the Pacific region. This will be achieved by helping DMCs prevent or rapidly control infection-at-source among birds by strengthening systems and incentives for early detection, reporting and controlling avian influenza outbreaks, and rapidly containing and managing cases of human influenza caused by the H5N1 virus. The Project will also help prepare the region for a possible pandemic by supporting regional interagency collaboration, regional cooperation in sharing information, and upgrading of national capacities through strengthened regional networks.

## Cost Estimates

Component	Total Cost
<b>A. Base Costs</b>	
1. Regional Capacity Building	12.76
2. Regional Coordination	8.05
3. Avian Influenza Response Facility	14.50
4. Project Management	0.80
<b>Subtotal</b>	<b>36.11</b>
<b>B. Contingencies</b>	
1. Price Contingencies <sup>a</sup>	0.32
2. Physical Contingencies <sup>b</sup>	1.57
<b>Subtotal</b>	<b>1.89</b>
<b>Total</b>	<b>38.00</b>

<sup>a</sup> Estimated at 6.0% of project costs of components 1,2, and 4.

<sup>b</sup> Based on the international cost escalation factors for 2005–2009.

Source: ADB staff estimates

## Financing Plan

Source	Total Cost	%
ADF Grant <sup>a</sup>	25.0	66
JSF Grant	10.0	26
TASF	3.0	8
<b>Total</b>	<b>38.0</b>	<b>100</b>

ADF=Asian Development Fund, JSF=Japan Special Fund, TASF=Technical Assistance Special Fund.

<sup>a</sup> All DMCs eligible to borrow from Asian Development Fund (ADF) resources may access ADF grant financing if the project relates to HIV/AIDS or other infectious diseases.

Source: ADB staff estimates.

## Allocation

A \$25 million grant from the Special Fund resources of ADB (Asian Development Fund [ADF] IX Grants Program) will assist ADF borrowing DMCs. A \$10 million grant from the Japan Special Fund and a \$3 million grant from the Technical Assistance Special Fund will help other DMCs participate in the Project's regional activities. All grants will be with terms and conditions substantially

in accordance with those set out in the grant agreement presented to the Board of Directors.

<b>Period of Utilization</b>	28 February 2009
<b>Estimated Project Completion Date</b>	31 August 2008
<b>Implementation Arrangements</b>	<p>The Project will be implemented by ADB, in close coordination with qualified regional and technical partners such as ASEAN, FAO, and WHO. An avian influenza secretariat to administer the Project will be established in the Gender, Social Development and Civil Society Division of the Regional Sustainable Development Department.</p>
<b>Executing Agency</b>	<p>ADB, acting through the avian influenza secretariat, will be the Executing Agency for the Project.</p>
<b>Procurement</b>	<p>Procurement by international organizations, including ASEAN, FAO, and WHO, will be done according to their procurement policies, acceptable to ADB. ADB will pay standard and reasonable administrative charges to implementing international organizations. Participating DMCs and ADB will identify a national implementing agency (or agencies) for procurement, following ADB's <i>Guidelines for Procurement</i> and the processes outlined in ADB's <i>Disaster and Emergency Assistance Policy</i>. Subject to agreement by the participating DMCs and ADB, international shopping procedures or local competitive bidding, with procedures acceptable to ADB, may be used for contracts of \$200,000 or more, and direct purchase for contracts worth less than \$200,000. To ensure a balance between protection of intellectual property rights, equity, quality, and economy, all implementing agencies will use FAO and WHO guidelines (as appropriate) to procure pharmaceutical and laboratory products.</p> <p>Given the need to coordinate closely with other international organizations, to respond quickly to changing needs of the region, and to facilitate work with potential cofinanciers, the procurement of goods and services shall be open to suppliers in member and nonmember countries, subject to approval by the Board of Directors.</p>
<b>Consulting Services</b>	<p>Most consultants will be contracted by participating international organizations or by participating DMCs. ADB will contract consultants for project administration and, if requested, may also contract consultants directly for the use of DMCs and international organization. The Project will finance an estimated 651 person-months of consulting services through components 1, 2, and 4. Additional consultants may be recruited under component 3. International organizations will use their own recruitment procedures, acceptable to ADB, to recruit international</p>

consultants. DMCs will recruit consultants in accordance with ADB's *Guidelines on the Use of Consultants* or other procedures acceptable to ADB. Consistent with the ADB's *Disaster and Emergency Assistance Policy*, ADB will ensure that consultant recruitment is flexible and efficient. Consultants may be individuals and firms from member and nonmember countries, subject to the approval by the Board of Directors.

## **Project Benefits and Beneficiaries**

**Regional Public Goods.** Controlling avian influenza is a regional public good. The actions of individual countries, although critical, are not sufficient to end the risk that avian influenza poses to animals and humans. Only by cooperating can countries effectively combat this threat. The Project will focus on strengthening the regional response to avian influenza, including reinforcing links among countries, sharing information and expertise, and facilitating risk pooling and stockpiling.

**Technical Capacity Building.** The Project will contribute to the long-term strengthening of the epidemiological surveillance system and to national and regional preparedness for outbreaks of zoonosis and other communicable diseases (including traditional, reemerging, and emerging diseases). The Project will support training in animal and human health, which will be useful after the current outbreak of avian influenza.

**Social Benefits.** Controlling the spread of avian influenza in poultry flocks will significantly improve the welfare of rural households in the region. The epidemic is harming small-scale poultry farmers and threatens the livelihoods of many poor and near-poor households. Reducing the risk of the further spread of the disease through improved farming methods and biosecurity, and helping establish sustainable schemes to compensate and assist small-scale and backyard poultry owners will help mitigate the negative impact of avian influenza. A related human influenza pandemic would slow down poverty reduction. The livelihoods and health of poor households would be most at risk. The poor have limited access to the health system and would probably delay using health services, which might result in a more severe illness that could send them deeper into poverty. Therefore, prevention of a human influenza epidemic will more than proportionately benefit the poor.

**Economic Benefits.** The Project, in coordination with other global, regional, and national initiatives, will lower the probability of an H5N1-related pandemic occurring and will minimize the economic impact if one does occur. Estimates show that the cost of such a pandemic would be \$100 billion–\$300 billion for Asia and the Pacific region (excluding Japan).

The Project will strengthen regional cooperation, transparency, exchange of information, expertise, and response capacity.

Increased trust and cooperation will help foster regional integration and economic growth.

## **Risks and Assumptions**

**Epidemiological Uncertainty.** H5N1 avian influenza remains a zoonosis (an animal disease that may affect humans), affecting poultry and wild birds but rarely transmitted to humans. The three influenza pandemics of the 20th century also originated among birds, caused by an avian virus that mutated into a virus that was transmitted efficiently among humans. There is no certainty that this will occur with the H5N1 virus, although experts believe that a pandemic—caused by a mutated H5N1 or another strain of influenza virus—is inevitable. Influenza pandemics can vary widely in virulence and efficiency in spreading among humans. They may affect different age groups differently. The efforts of the Project to control H5N1 influenza may appear ineffective if this particular virus never mutates into a human virus or if the related human influenza pandemic is mild. The Project however will strengthen regional cooperation and health systems and better prepare the region for emerging or reemerging communicable diseases.

**Donor Coordination.** Because the threat of a human influenza pandemic is global, interest is growing in supporting measures against H5N1 avian influenza. Many bilateral and multilateral agencies have offered assistance to governments, which also develop their own initiatives. Given these multiple partners, efforts might be duplicated and governments may not have the capacity to manage the offered assistance. The Project's primary goal is to improve regional coordination, including in developing preparedness plans and surveillance, to allow countries to take full advantage of global support.

**Low Demand.** Avian influenza is a major concern of governments throughout the world. However, they may lose interest as the H5N1 virus evolves or as some other event takes center stage. As a result, ADB may commit significant resources and not be able to reallocate them to other priorities. In designing the Project, ADB has shown significant flexibility and it would be able to quickly adjust the Project. The Project is short, which assures the quick return of unused funds for other uses.

## I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on the proposed grants to the Association of Southeast Asian Nations (ASEAN) Secretariat, the Food and Agriculture Organization of the United Nations (FAO), the World Health Organization (WHO), and participating developing member countries (DMCs) of the Asian Development Bank (ADB) for the Prevention and Control of Avian Influenza in Asia and the Pacific Project. The design and monitoring framework is in Appendix 1.<sup>1</sup>

## II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS, AND OPPORTUNITIES

2. Avian influenza A H5N1<sup>2</sup> poses a major development challenge to Asia and the Pacific region. This highly pathogenic virus has infected poultry in many Asian countries and has become endemic in large parts of the People's Republic of China (PRC), Indonesia, and Viet Nam. The virus has now been detected in birds and humans in Turkey and has spread to parts of Africa, Europe, the Middle East, and South Asia. Experts believe that the virus could mutate or reassort and develop a new subtype that is easily transmittable among humans, leading to an influenza pandemic. Every case of animal-to-human transmission gives the virus another chance to mutate into a human-to-human transmissible virus.

3. WHO uses a series of six phases of pandemic alert to classify the seriousness of the threat and to determine whether to launch progressively more intense control and prevention activities. Determining the phases and deciding when to move from one phase to another may be triggered by several factors, including the epidemiological characteristics of the disease and the circulating influenza viruses. As of 1 March 2006, the world has been in phase 3: a new influenza virus against which humans have no immunity is circulating, but it is not yet spreading from humans to humans. WHO considers the world to be the closest to a global influenza pandemic since 1968.<sup>3</sup>

4. The region faces three types of threats from H5N1 influenza. First, the virus is already endemic and virulent in poultry in many countries, putting at risk the poultry industry and the livelihoods of many small-scale producers. Second, the health of poultry workers and their families is at risk. It is difficult for humans to contract avian influenza in its current form, and the number of reported human cases has been low and mostly confined to those in close contact with poultry. However, once contracted, avian influenza has proven highly dangerous: about half the people reported to be infected have died. Third, the H5N1 virus could mutate into a form that is easily transmissible among humans, creating a pandemic that would put at risk the lives of millions of people across the globe and halt the region's economic progress.

5. In response to this mounting threat and to growing requests for support from DMCs, ADB has entered into partnership with ASEAN, FAO, and WHO to develop a flexible and urgent response. The Project will support regional activities to contain the spread of avian influenza

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<sup>1</sup> Support for the preparation of this Project was provided by RETA 6108 (ADB. 2003. *Technical Assistance for Emergency Regional Support to Address the Outbreak of Severe Acute Respiratory Syndrome (SARS)*. Manila); RETA 6194 (ADB. 2004 *Technical Assistance for Preparing the Greater Mekong Subregion Regional Communicable Disease Control Project*. Manila); and the administrative budget of the Gender, Social Development, and Civil Society Division.

<sup>2</sup> In this report, "Avian influenza" means the highly pathogenic avian influenza spreading among birds caused by the A H5N1 avian influenza virus. "Human influenza pandemic" means one that may be caused by a new strain of influenza virus, which could result from mutations of the current virus.

<sup>3</sup> World Health Organization. 2005. *WHO Global Influenza Preparedness Plan*. Available: [www.who.int/csr/disease/avian\\_influenza](http://www.who.int/csr/disease/avian_influenza).

among poultry, to prevent the outbreak of a human influenza pandemic, and to prepare the region for a potential pandemic. It will complement country-level support. The major outbreaks among birds and all human cases to date have occurred in Asia. Controlling the outbreaks will help protect populations in Asia and the Pacific region and beyond.

6. Prevention of avian and human influenza is a public good. No country, on its own, can combat its spread. Migratory birds are carriers of the disease and may infect domestic birds, raising the risk of the virus reappearing where it has been eliminated. Migratory flocks can spread the virus widely and have carried it to Africa, Central Asia, Europe, and South Asia. Countries are closely interlinked through globalization and cannot shut down their borders to potential carriers of human influenza. Thus, all countries have an interest in ensuring that each country can respond suitably and effectively.

## A. Performance Indicators and Analysis

### 1. Background

7. **Social and Economic Impact.** In the past 2 years, avian influenza has affected birds throughout Asia, significantly dislocating the poultry sector. In the Mekong subregion alone, the outbreak is estimated to have cost about \$580 million through March 2005, excluding the loss caused by trade restrictions.<sup>4</sup> FAO has estimated the total cost of the outbreak at around \$10 billion.<sup>5</sup> Many countries have had to cull large numbers of poultry to control the spread of the virus. Poultry is a major source of income and nutrition for many rural households in Asia. The loss of poultry to disease and culling has pushed many families into poverty. The international trade in poultry products has been greatly harmed and the exports from a number of major poultry-raising countries severely reduced.

8. **Human Impact.** As of 1 March 2006, WHO confirmed 174 human cases, with 94 fatalities.<sup>6</sup> Humans primarily contract avian influenza from close and direct contact with birds (mostly poultry), with few confirmed cases of human-to-human transmission.<sup>7</sup> Although the H5N1 virus would have to mutate or recombine with existing human influenza viruses to facilitate human-to-human transmission, experts are worried about the high mortality rate in humans and the virus' efficiency in spreading among different bird populations. Appendix 2 outlines the epidemiology of influenza and its impact on human health.

### 2. Human Influenza Pandemic

9. **Historical Context.** Influenza is highly contagious and spreads easily across borders among humans. Seasonal influenza is a common disease affecting a large number of people every year. The mortality rate tends to be low, with mainly the very young, the elderly, and other vulnerable populations at risk. Still, in a typical year, 600,000 to 1.5 million die worldwide from seasonal influenza. Humans develop immunity against the virus, and vaccines are available, but the virus changes slightly every year and the vaccine needs to be adapted. Every year, WHO, with the assistance of collaborating centers, defines the content of the annual vaccine, using the

<sup>4</sup> ADB. 2005. *Greater Mekong Subregion Regional Communicable Control Project*. Manila.

<sup>5</sup> FAO/OIE. *Global Strategy for the Progressive Control of Highly Pathogenic Avian Influenza (HPAI)*. Available: <http://www.fao.org/ag/againfo/subjects/documents/ai/HPAIGlobalStrategy31Oct05.pdf>.

<sup>6</sup> WHO Epidemic and Pandemic Alert and Response webpage: [http://www.who.int/csr/disease/avian\\_influenza/en/](http://www.who.int/csr/disease/avian_influenza/en/) - [http://www.who.int/csr/disease/avian\\_influenza/country/cases\\_table\\_2006\\_03\\_01/en/index.html](http://www.who.int/csr/disease/avian_influenza/country/cases_table_2006_03_01/en/index.html)

<sup>7</sup> Much of the epidemiological background for this report is drawn from The Writing Committee of the World Health Organization. 2005. Avian Flu A (H5N1) Infection in Humans. *New England Journal of Medicine*. 353: 1374–1385.

most likely strains of the virus in the following influenza season. Periodically, a completely new strain appears, against which the annual vaccine will not protect. The influenza outbreaks caused by new strains are often more virulent, with a higher case fatality rate. Developing, producing, and distributing a vaccine against a new strain normally takes 4 to 6 months.

10. The 20th century saw three influenza pandemics, in 1918–1919, 1957–1958, and 1968–1969. The 1918–1919 pandemic, commonly called the “Spanish flu” was one of the worst health catastrophes ever. An estimated 50 million to 100 million people died, representing a fatality rate of 2.5% to 5.0%.<sup>8</sup> This rate was unusually high because of several factors, at the end of the First World War, including the (i) poor public health conditions, (ii) low nutritional levels, (iii) large movements of populations as troops were demobilized, and (iv).lack of medication to treat secondary bacterial infections (antibiotics were only released on the pharmaceutical market in 1939). The two other influenza pandemics killed substantially fewer people, about 1 million to 3 million people. All three influenza pandemics, generally believed to have originated in Asia, were caused by mutated or recombined avian viruses.

11. **Consequences of a Pandemic.** It is not possible to predict how and when an influenza virus will mutate and how virulent the new strain will be. It appears difficult for human to catch H5N1 from animal-to-human transmission as relatively few people have been infected. However, each human infection give the virus the opportunity to mutate (as happened with the Spanish flu) or recombine with seasonal human influenza virus strains (as happened with the other two pandemics), and thereby spread more easily among humans. Although it is difficult to predict the virulence of a new human-to-human transmissible influenza virus, WHO estimates that from 2 million to 7 million people could die worldwide from an influenza pandemic. This is equivalent to a mortality rate of 0.03% to 0.12% and is the basis for planning in many countries. However, others point to the high pathogenicity of the H5N1 virus and project a mortality of 180 million to 360 million (mortality rates of 3% to 6%) or even higher.<sup>9</sup>

12. The world has changed significantly since the last pandemic in 1968. Economies are much more interlinked, information flows more freely, and the movement of people has increased dramatically. The world is much more vulnerable to economic shocks. The outbreak of SARS<sup>10</sup> in 2003, for example, ultimately infected only some 8,000 people, with a case fatality rate of around 10%, concentrated in a few, mostly Asian, countries. Because of the strong world reaction, however, several economies were severely affected. The region lost around \$18 billion in economic output.<sup>11</sup> Since the actual health consequences were minimal, this cost was largely caused by the outbreak’s psychological impact on demand. The public’s reaction to outbreaks of mad cow disease (bovine spongiform encephalopathy) and foot-and-mouth disease demonstrate a marked tendency to overreact to public health threats.

13. The impact of an influenza pandemic would be even worse. Using the SARS outbreak as a model, an ADB study has estimated that an outbreak consistent with the WHO baseline could cost the region \$297 billion in 1 year and would throw the world into economic recession.<sup>12</sup> This is largely because consumption would slow down; trade of services, including

<sup>8</sup> Barry, J. 2005. 1918 Revisited: Lessons and Suggestions for Further in Inquiry. In *The Threat of Pandemic Influenza: Are We Ready?* Edited by S. Knobler, A. Mack, and A. Mahmoud. Washington, D.C. : National Academies Press.

<sup>9</sup> Osterholm, M. 2005. Preparing for the Next Pandemic. *Foreign Affairs*. July/August.

<sup>10</sup> Severe acute respiratory syndrome.

<sup>11</sup> ADB. 2003. *Asian Development Outlook*. Manila.

<sup>12</sup> Bloom, E., De Wit, V., Carangal-San Jose, J. 2005. The Potential Economic Impact of an Avian Flu Outbreak on Asia. *ERD Policy Brief #42*. Manila: ADB.

tourism, would particularly be reduced. This type of outbreak would lead to around 3 million deaths in Asia, the equivalent of 45.6 million life years lost, causing lost income of \$267 billion. Another 20.8 million life years would be lost because of temporary incapacity. If the international community can contain the panic, the economic consequences would be substantially reduced.

### 3. Strategy for Combating Avian and Human Influenza

14. Governments and development partners agree that the rapid control and containment of avian influenza should remain a global priority. To coordinate the response to this emerging challenge, a number of high-level international meetings have been held. A major meeting took place in WHO headquarters in Geneva on 7–9 November 2005, with representatives from most WHO member countries, bilateral donors, and international agencies. The meeting identified priority interventions to control avian influenza and improve preparedness for a possible human influenza pandemic.

15. **Containing Infection at Source.** There is wide agreement that the best strategy to prevent a pandemic is to contain the threat at source, when it still affects mainly the bird populations. This involves (i) enhancing biosecurity in the poultry sector to prevent new infections of birds, (ii) timely notification and verification of avian influenza outbreaks in domestic and wild birds, and (iii) rapid containment through culling and vaccination. In the long term, countries in the region should improve the safety of poultry farming and marketing. In the short term, early warning and surveillance systems for animal diseases are critical. With livestock farmers, especially in backyard poultry farming, at the frontline, providing appropriate compensation is an important incentive to ensure their active participation. Transparent and immediate reporting by authorities is essential, as is the sharing of virus samples to rapidly identify the virus subtype and prepare a human vaccine.

16. **Preparing for a Human Influenza Pandemic.** While working on the primary strategy of minimizing the threat at source, countries and international partners also committed to prevent or delay<sup>13</sup> a human influenza pandemic. This requires coordinated national, regional, and global efforts to quickly detect mutations of the circulating avian influenza viruses and to limit the outbreaks. The international community identified five key strategic actions:

- (i) Reduce human exposure to the H5N1 virus through risk communication and strengthened collaboration between animal and human health services.
- (ii) Strengthen an early warning system by supporting systems for sensitive detection, rapid laboratory confirmation, real-time risk assessments, and immediate communication.
- (iii) Intensify rapid containment measures by supporting rapid field investigation, contact tracing and monitoring, stringent infection control, and intervention with international stockpile following the first signs that the virus is transmitting from humans to humans.
- (iv) Build capacity to cope with a pandemic by developing national plans, testing and rehearsing them, and developing the capacity to implement them.
- (v) Accelerate vaccine development and expand production capacity by enhancing coordination with the pharmaceutical industry, strengthening real-time scientific data, accessing global expertise, and providing incentives to the industry to produce sufficient quantities of vaccines.

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<sup>13</sup> Delaying or slowing down the spread of a pandemic will save millions of lives by buying time to develop a vaccine.

#### 4. Regional and National Needs

17. Avian influenza has already had a significant economic impact, and a pandemic would severely tax the capacity of most public health systems in the region. To control the spread of avian influenza and to prevent and mitigate a pandemic, significant new national, regional, and global resources are needed (Appendix 3).

18. Regional technical agencies need to be strengthened so that they can effectively support countries in the current pre-pandemic stage. Greater regional cooperation is needed in sharing information and training, and strengthening networks for epidemiological surveillance and laboratory testing. If a pandemic breaks out, national and regional emergency response teams and stockpiles of essential drugs and equipment will be needed. After an outbreak, countries will need support for recovery.

19. In Asia and the Pacific region, largely corresponding to ADB's DMCs, FAO has estimated an unmet need of around \$18.6 million for regional activities and \$29.0 million for support to regional reference laboratories. WHO has estimated regional needs of about \$37.0 million for human health activities. These estimates exclude global activities. Since most of the cases of avian influenza (in birds and humans) have been in the region, a large part of global support will likely directly benefit it.

20. Estimations of national demand for resources are still speculative, as the spread of avian influenza is still not clear. The World Bank has estimated that countries in East and South Asia will need around \$711 million and have an internal capacity to finance 30% to 50% of this amount. Central Asia will likely need around \$45 million and could finance \$10 million to \$15 million. These figures probably underestimate the needs of the health sector and perhaps also the needs of the animal health system in a country where avian influenza becomes endemic.

#### 5. International Response

21. Governments and international organizations have committed significant technical and financial resources to fight avian influenza among birds and to prevent or halt its spread among humans. Appendix 4 outlines international support for fighting avian and human influenza. International agencies are developing global, regional, and national financing and monitoring frameworks. In January 2006, a major conference was held in Beijing to pledge support for global, regional, and national pandemic preparedness plans.

22. At the Beijing conference, development partners pledged about \$1.9 billion, including support that has been disbursed and support that is in the pipeline. Some of the support is from multilateral financing agencies such as ADB, the World Bank, and the European Commission, and from bilateral sources, including development agencies and national technical agencies, such as the Center for Disease Control and Prevention of the United States and France's Pasteur Institutes.

##### a. International and Regional Organizations

23. **Asian Development Bank.** ADB has been active in the health sector in a number of countries in Asia and the Pacific region, including by supporting national and regional efforts to control communicable diseases and by strengthening health surveillance and food safety. ADB has pledged about \$470 million for avian influenza prevention and control, including \$68 million in grants, in two regional projects (including \$10 million cofinancing from the Government of

Japan). ADB has also offered about \$400 million in loans. The loan amount includes restructuring existing loans to save money and expedite new loans. The grant projects are largely for regional activities although they do finance some national activities. ADB has a number of ongoing projects and activities that will support efforts to control avian influenza.

24. The Greater Mekong subregion<sup>14</sup> has been the center of the outbreak of avian influenza and is the focus of much of ADB's attention. The Communicable Disease Control (CDC) Project<sup>15</sup> is a key regional initiative. It focuses on improving regional coordination and the provision of regional public goods. It supports disease control, strengthens laboratories, and focuses on controlling avian influenza.

25. **World Bank.** In partnership with FAO and WHO, the World Bank leads donor coordination and resource mobilization. Its initial estimates of financial needs have been used to solicit donor assistance. It established a finance facility that will offer concessionary or market-based lending to countries, depending on country eligibility. This \$500 million facility, approved in January 2006, will serve as the main source of funds. The World Bank is in the process of establishing a multi-donor trust fund to provide grant assistance. The fund has received commitments from the European Commission and several other development partners.

26. **Food and Agricultural Organization and World Organization for Animal Health (OIE).** FAO and OIE are working together to control avian influenza, containing infection at source through progressive control of H5N1 avian influenza and its eradication from poultry flocks in Asia. Immediate actions include preparing emergency plans and establishing regional networks on surveillance, diagnostic, and disease information. Control measures include culling, biosecurity, quarantine, and movement control, combined with strategic vaccination of domestic poultry. FAO's medium-term strategy is to help countries establish disease-free zones, progressively confine the disease to defined areas, and ultimately eradicate the disease from remaining compartments of infected domestic poultry in the region by promoting healthy farming practices, wide-scale vaccination in the predominantly commercial and backyard poultry sectors, and strict post-vaccination monitoring.

27. **World Health Organization.** WHO is focusing on mitigating the impact of avian influenza on human health and preventing a pandemic. WHO has advocated influenza pandemic preparedness planning for all countries and recommended increased surveillance of the H5N1 virus. Before the pandemic, interventions should aim to gather better intelligence on the H5N1 virus, particularly on mutations in the virus genome and changes in the epidemiology of influenza outbreaks that may signal increased transmissibility of the virus. If an influenza virus causes a pandemic (a new strain highly transmissible among humans), WHO's strategy will contain or delay the spread of the virus at the source.<sup>16</sup> If a pandemic begins, WHO will coordinate international actions to reduce morbidity, mortality, and social disruption. WHO is supporting pre-pandemic research to guide response measures. It is working closely with FAO and OIE to coordinate activities and technical advice. It is also promoting risk communication strategies.

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<sup>14</sup> Cambodia, Lao People's Democratic Republic, Myanmar, Thailand, Viet Nam, and Yunnan Province and the Guangxi Zhuang Autonomous Region in the PRC.

<sup>15</sup> ADB. 2005. *Report and Recommendation of the President to the Board of Director for a Proposed Grant to the Kingdom of Cambodia, the Lao People's Democratic Republic, and the Socialist Republic of Viet Nam for the Greater Mekong Subregion Regional Communicable Disease Control Project.* Manila.

<sup>16</sup> Rapid response and containment strategy. Available:  
[http://www.who.int/csr/disease/avian\\_influenza/guidelines/RapidResponse\\_27%2001.pdf](http://www.who.int/csr/disease/avian_influenza/guidelines/RapidResponse_27%2001.pdf)

28. **Association of Southeast Asian Nations.** ASEAN members<sup>17</sup> have been at the center of the avian influenza epidemic. The ASEAN Secretariat is developing its capacity to coordinate a regional response to public health threats. It is supporting efforts to share information on avian influenza and is working with development partners to improve regional coordination.

#### b. Country Responses

29. FAO, WHO, and other technical agencies emphasize that all countries and regions must develop comprehensive plans that integrate interventions related to animal and human health and strengthen surveillance systems and response mechanisms. Countries should also consider possible disruptions to essential services in case of a pandemic. These plans can become the basis for coordinated financial and technical support from bilateral donors and international agencies.

30. Although most countries in Asia and the Pacific region have plans to prevent a pandemic by containing avian influenza among poultry, and to manage a influenza pandemic if containment fails, the plans' quality and realism vary greatly. As recommended by the technical agencies, most of these plans have been prepared jointly by ministries of health and agriculture. Capacities to implement the plans also vary greatly. Most plans are not adequately resourced and most countries need more support to refine their strategies and to develop the technical and logistical capacity to implement them.

31. **Regional Support.** Japan is supporting national and regional initiatives directly through bilateral support and through a number of international and regional organizations. In particular, Japan is helping establish regional stockpiles for antiviral drugs and protective personal equipment. It is providing \$10 million to ADB to support regional activities, and \$5 million to the World Bank for its grant facility. Japan is directly supporting FAO and WHO and is also providing significant support to UNICEF<sup>18</sup> /WHO in the area of community-based risk communication. In total, Japan has contributed around \$135 million. Beyond its commitment to share information with the international community, the Government of the PRC has pledged \$10 million, mainly to support neighboring countries. Australia is providing around \$75 million at the national and regional levels.

32. **Europe.** The European Union member states have been active in international support against avian influenza. The European Commission is planning to provide €80 million to the World Bank's grant facility, of which €35 million is destined for Asian countries (including Central Asia) and €20 million for vaccine research and development. Individually, member states are pledging a total of \$260 million for national, regional, and global support. A significant part of the European countries' assistance will be allocated through international organizations.

33. **North America.** The United States is the largest single contributor, with commitments of \$334 million to fight avian influenza nationally, regionally, and globally. This includes research and development, and support to improve animal and human health, offered by a variety of government departments and agencies. Canada, the only non-Asian country that was affected by SARS, is contributing around \$30 million, focused largely on Asia.

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<sup>17</sup> Brunei, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Singapore, Thailand, and Viet Nam. All members, except Brunei, are also ADB members.

<sup>18</sup> United Nations Children's Fund.

## **B. Analysis of Key Challenges and Opportunities**

### **1. Key Challenges**

34. Health experts think that the world is at the greatest risk now of a human influenza pandemic since 1968. Although it is not clear that the current H5N1 will lead to the next pandemic, it does appear to be only a matter of time before a new influenza virus emerges. Coordinated action is needed to mitigate the impact of the avian influenza outbreaks and prevent a pandemic from this dangerous subtype.

#### **a. Limited Government Surveillance Capacity**

35. Tracking and diagnosing diseases require established field and laboratory systems. Local capacity is needed to monitor infectious diseases among animals and humans. This is likely to be the responsibility of different agencies. Laboratories need to have adequate systems to collect, transport, and test specimens, and they require adequate biosafety and waste disposal systems. Most developing countries have only limited resources for epidemiological and laboratory surveillance and response, and public health is largely under-funded. Countries will need significant support from international organizations to strengthen their animal and human health systems.

#### **b. Evolving Regional Cooperation**

36. One of the major lessons from the SARS outbreak is the importance of regional cooperation in public health. The countries of Asia and the Pacific Region have committed themselves to strengthen the exchange of information and to coordinate public health activities. However, this is a relatively new area and there is little experience on how to organize regional cooperation in the health sector. International organizations have generally focused on country-level activities but do have some experience in this area. Strengthening their capacity will require additional resources and support.

#### **c. Uncertain Nature of the Threat**

37. Avian influenza has already done significant harm to the region's poultry industry. However, the course of the H5N1 virus is uncertain. Although the H5N1 virus has proved to be highly virulent for humans, it does not spread easily among humans in its present form. The appearance, through mutations or reassortment, of a new influenza virus easily transmissible among humans and thus causing a new pandemic, is considered likely, and H5N1 is a serious candidate. But the time frame for such transformation is difficult to predict. The epidemiological properties of this new pandemic strain cannot be known, which makes it difficult to design an adequate public health response. National health systems may overreact and over prepare, or find that they are overwhelmed by the virus.

38. Authorities need to pursue a dual strategy to prevent mutation or reassortment of the H5N1 virus and, at the same time, to prepare for a human influenza pandemic. Regional organizations can play an important role in planning and coordination, training and capacity building, and stockpiling of critical commodities.

#### **d. Low Preparedness for a Pandemic**

39. Health systems in the region are unprepared for a pandemic. Health workers will need adequate protection (protective gear, vaccination). A large portion of the population may need to be vaccinated. Sick people should receive antiviral treatments such as oseltamivir (Tamiflu®), and antibiotics to treat secondary infections. For most cases, specialized equipment (such as ventilators) will be needed. Many Asian countries have underinvested in health, and public spending on health is lower than in other regions. The last human influenza pandemic was in 1968 and the last severe pandemic was in 1918. As a result, health workers, especially at the local level, at the frontline, have limited experience with influenza pandemics, and training lags in many countries.

40. International organizations can play an important role in coordinating activities and planning for a pandemic. Exchange of information, materials and experience, harmonization of public health measures, and regional training activities will be essential to control a pandemic. Coordination is important because a pandemic will spread quickly across borders. Procurement can be facilitated regionally for some goods and supplies. Medications and vaccines often have significant economies of scale, and pooling orders may substantially reduce the cost. Establishing regional stockpiles also makes economic sense as it allows countries to pool limited resources to establish a system of rapid response to a human influenza outbreak.

#### **e. Appropriate Incentives for Farmers**

41. When combined with other measures, culling diseased flocks plays a major role in preventing the spread of avian influenza at its source. Culling has significant benefits for society but a high cost for farmers, giving them little incentive to participate voluntarily. Governments may try to force culling, but farmers often attempt to subvert it by hiding part of their flock or slaughtering poultry before the cull.

42. Establishing appropriate and adequate compensation for farmers is complex. Planners must carefully weigh the incentives that they are creating through the compensation mechanism. A system that is too generous will encourage excessive culling and encourage farmers to restock their farms too quickly in hope of additional payments. However, if payments are not sufficient, the system will have limited impact.

43. Many countries lack systems to accurately register and map farms and conduct an adequate poultry census. Governance issues and the limited capacity of animal health services also limit the capacity to set up a compensation system. The resources needed are likely to exceed what is available in most countries, even with significant international support. Supplementary Appendix A discusses the issue of compensation in greater detail.

#### **f. Information Gap**

44. Proper communication, including timely and accurate reporting of new outbreaks, is essential to control an epidemic. One key lesson from the SARS outbreak of 2003 was the importance of managing information. The public and even health care providers lacked correct information. Information was not shared openly and transparently with the public or with the international community, which led many to overreact.

45. Risk communication requires special attention. The public needs clear, regular, and reliable information to understand governments' efforts to control outbreaks and to prevent

panic. Civil society, nongovernment organizations, and other community groups can help facilitate the flow of information and should be closely involved. The risk communication strategy should aim appropriate messages at different groups, including farmers and poultry workers, health workers, animal health workers, public officers, and the public. Providing accurate information, in appropriate language, is a public good and one that will likely require government intervention. The international community can support national governments with accurate information and recommendations on how to craft a risk communication campaign.

## **2. Strategic Context**

46. Avian influenza directly threatens economic growth, a key determinant of poverty reduction. Economic analysis shows that in the short run, growth in East and South Asia would likely be halted during a pandemic and many countries would go into recession. Beyond this, a pandemic would shake the confidence of local and international investors, which could cause long-term economic harm. A pandemic may reverse the accumulation of human capital, which would hinder long-term poverty reduction. It would strain weak social protection and health systems in most countries.

47. The avian influenza epidemic has important regional implications. Without cooperation, the efforts of any individual country are likely to be ineffective. ADB is committed to promoting regional cooperation and developing regional public goods. ADB is well placed to support a regional response because of its presence in the region, access to regional networks, ability to provide and mobilize significant financing, and experience with similar issues. Institutional structures for surveillance and response and disaster management in the DMCs of the region need to be strengthened. The region will continue to face a risk from avian influenza as well as other health threats with increasing frequency.

## **C. Rationale for a Regional Approach**

48. ADB will help member countries respond to the challenge of avian influenza by supporting regional activities. The rationale for a regional approach is as follows:

### **1. Disease Prevention and Control as Public Good**

49. Investing in public health and disease prevention generates many positive externalities and has many characteristics of a public good. Disease prevention and control benefit the entire population and, for many interventions, it is not possible to restrict the benefits or to charge the beneficiaries. The market, on its own, will not provide the optimal level of public health services, which is why public intervention is strongly justified.

50. Each country can individually take action, but the influenza virus can easily cross borders even with a sophisticated national response. Countries benefit from coordinating surveillance and response activities to ensure that capacity is good throughout the region. If one country lacks capacity, it will undermine the efforts of other countries. Regionally, all countries benefit from coordinating and establishing a set of common standards for activities such as culling diseased flocks, quarantining sick individuals, and informing the public (communication strategy). This justifies a regional response, coordinated and financed through regional and international organizations, to help countries protect public health.

## **2. Risk Pooling**

51. The course of avian influenza is highly uncertain. Many experts expect a pandemic, but do not know when, where, and how severe it will be. Over the last three centuries, there has been a pandemic about every 30 years. Each has been different in duration, severity, and vulnerable population. Preparing for a pandemic that may not materialize is expensive, especially for poor countries, and is likely to include stockpiling of antiviral drugs (for mortality reduction and for prophylaxis), personal protective equipment (masks, gloves, etc.), vaccines, and laboratory equipment and supplies.

52. Working together regionally, countries can pool stockpiles and use them when and where they are needed most. As under an insurance scheme, instead of each country having a large stockpile, a regional stockpile can be placed in one or more central locations and be made available as needed. This requires a clear set of criteria for accessing it. A quick decision-making structure is needed, as is a strong logistical system to ensure the safe storage and rapid delivery of goods. International technical agencies, particularly WHO, are studying the most appropriate stockpiling mechanisms.

## **3. Reduced Transaction Costs and Economies of Scale**

53. Through regional actions, countries can reduce the transaction costs of many key activities. Health surveillance will be enhanced if the systems can feed into each other and provide advanced warning. Regional training is more economical than national training as larger groups can be covered. This is especially important for specific areas of knowledge where each country might need only a few specialists. Training of trainers can be enhanced through exchanges to allow staff to see what works and what does not work in neighboring countries. Countries can pool their resources to enter into purchasing agreements with drug and equipment suppliers. By guaranteeing to purchase a certain amount of drugs and vaccines for example, prices will be cheaper. Large orders will help develop production capacity as producers are more confident about the returns on investment. These actions will reduce the transaction cost for all participating countries and help ensure that middle- and low-income countries have adequate access to supplies.

## **D. Lessons and Strategic Approach**

### **1. Lessons**

54. ADB's experience in working with regional and international organizations has been largely positive. These organizations have significant technical strength and generally have good relations with the technical implementers at the national level, such as line ministries. In the health sector, ADB has worked well with WHO globally and regionally. While international organizations have significant technical competence, they often need support in financing and implementing large projects. ADB's strategic partnership with technical agencies can help bridge this gap. Both ADB and other international organizations have complicated rules for procurement, contracting of consultant services, and project implementation. These are often not compatible. From the outset, ADB should try to understand the fiduciary responsibilities of other agencies and identify ways of aligning them with its own.

55. ADB has been working with DMCs to develop regional response to public health concerns, such as HIV/AIDS and communicable disease control. This support has included a mix of support to national governments and to relevant international organizations. ADB has

found that this mix provides a good balance and encourages DMCs to play an active role in regional dialogue.

56. One of the most relevant lessons comes from ADB's work in supporting SARS control efforts in 2003. ADB supported WHO regionally and offered to support affected countries with technical assistance (TA) resources (grants) and restructured loans. ADB's support to WHO was timely. Although WHO was the lead technical agency, it had limited resources, often tied to specific initiatives. Besides financial support, ADB provided WHO with important logistical support and facilitated high-level access outside the health sector. This combination improved the effectiveness of both organizations' activities to control the spread of SARS and is an important precedent for both organizations.

## 2. Guiding Principles for Regional Support

57. ADB will be guided by the following principles:

58. **Effective Coordination.** Several international agencies and development partners plan to support a response to avian influenza in the region. ADB will closely coordinate its support with other partners to ensure synergies and avoid duplication. ADB will be guided by FAO/OIE and WHO to ensure technical consistency. ADB will work with others to ensure complete regional coverage.

59. **Results Orientation.** ADB's objective is to help countries control and prevent avian influenza. ADB will support only those regional activities that have demonstrable significant impact on national efforts and will work to ensure that regional activities are properly linked to national strategies and activities.

60. **Flexibility.** Interest in and commitment to fighting avian influenza is growing. The disease and its risk to human and animal health are evolving. A rapid response to avian influenza has to be flexible in design and implementation. ADB will ensure that its operations are sufficiently flexible to meet the changing needs, including working closely with implementing partners to harmonize procedures.

## III. THE PROPOSED PROJECT

### A. Impact and Outcome

61. The Project is part of the international effort to respond to the threat of highly pathogenic avian influenza and to prepare for a possible human influenza pandemic, thereby helping prevent, or at least mitigate, possible major social and economic disruptions in Asia and the Pacific region. The Project will improve national and regional capacity for surveillance and response to emerging diseases. The Project will be implemented in close coordination with other national and international initiatives.

62. The Project will support regional cooperation activities related to information sharing and communication, laboratory services, and public health procedures. The Project will support regional capacity to respond to a potential pandemic. The Project, designed in close coordination with governments, ASEAN, FAO, WHO, and other regional partners, will be implemented in a harmonized way with other national and international initiatives.

## **B. Outputs**

63. The Project has four components, to be implemented over 2.5 years: (i) regional capacity building, (ii) regional coordination, (iii) avian influenza response facility, and (iv) project management. Appendix 5 shows the linkages between project components and the strategic actions to combat avian and human influenza.

## **C. Grantees and Beneficiaries**

64. The Project will benefit DMCs in Asia and the Pacific Region. It will provide grant support to international organizations to support regional capacity building activities and to strengthen the avian influenza prevention and control activities of various DMCs.

### **1. Component 1: Regional Capacity Building**

65. The Project will strengthen the capacity of international organizations to support national activities to control avian influenza, and to prevent, if possible, or prepare for, a human influenza pandemic. Although the financing will be channeled through international organizations, support will focus on activities that directly benefit DMCs and support their national efforts.

#### **a. Containing Infection at Source**

66. The Project will help contain avian influenza at source by strengthening the capacity of FAO and ASEAN Secretariat to provide adequate support to DMCs' activities related to avian influenza and the animal health sector. The Project will finance consultants and the procurement of equipment, supplies, drugs, and services for animal health interventions. The Project will help strengthen animal health services in the region and, among others, (i) develop and refine national plans and capacities for containing avian influenza, (ii) develop policies and systems for animal quarantine and vaccination, and (iii) develop guidelines for culling poultry flocks and establishing compensation mechanisms. The financing will support FAO's regional emergency response team, the Emergency Center for Transboundary Animal Diseases (ECTAD). This support will focus on the ECTAD regional unit in Bangkok and elsewhere in the region.

#### **b. Preventing Human Infection and Preparing for a Potential Human Influenza Pandemic**

67. The Project will help prepare the region for a potential human influenza pandemic by strengthening WHO's regional capacity to support countries. The Project will finance consultants and the procurement of equipment, supplies, drugs, and services to help prevent and control a pandemic. Support will be oriented to countries' needs to protect human health and will, among others, include activities to (i) develop and rehearse pandemic preparedness plans, (ii) strengthen surveillance and case management, and (iii) advise on drugs and medical supplies for human influenza outbreaks.

### **2. Component 2: Regional Coordination**

68. The Project will help strengthen regional coordination and communication among countries on emerging and communicable diseases among animals and humans. Regional avian influenza communication and planning networks will be developed and expanded, and research and surveillance networks strengthened to coordinate veterinary and biomedical analysis and research. The Project will finance national advocacy and public information

campaigns. Appendix 6 contains details of regional activities. Funding in component 2 can be allocated to international organizations or directly to participating DMCs when they have sufficient capacity (government agencies, academic institutions, or the private sector) to administer the component themselves, without the support of international organizations.

**a. Improved Technical Coordination**

69. The Project will help improve coordination between affected countries. It will help establish networks to share epidemiological and other scientific information, diagnostic problems and solutions, and laboratory specimens and samples; develop regional research and development projects related to emerging diseases; and strengthen regional reference laboratories if requested, and coordinate responses to avian influenza and emerging diseases. Specifically, this subcomponent will increase technical exchanges of staff and researchers, and regional efforts to develop and manufacture human and animal influenza vaccines and drugs.

**b. Rapid Field Response and Containment Capacity**

70. The Project will help establish a cadre of national and international professionals resident in the region, who can be rapidly mobilized to respond to a human influenza pandemic. Selected from different countries in the region, they will be trained to lead a pandemic containment response on short notice (Appendix 6). The Project will strengthen communication networks in the region to ensure early warning of emerging diseases.

**c. Risk Communication**

71. The Project will help DMCs develop and implement risk communication strategies on avian influenza and emerging diseases, ensuring regional coordination and consistency in the messages. In particular, it will support broad civil society involvement (mass media, nongovernment organizations, and community workers) in public communication campaigns and mass education programs on avian influenza. Messages will help the public distinguish between avian influenza, seasonal influenza, and influenza pandemic. The Project will ensure that information campaigns consider the language and culture of the target populations. This effort will support and complement ongoing activities currently being jointly developed by UNICEF and WHO.

**3. Component 3: Avian Influenza Response Facility**

72. The Project will expeditiously and flexibly help meet the changing needs of the evolving epidemic by creating an avian influenza response facility (AIREF). The Project will (i) provide critical and urgent financing to contain an avian influenza outbreak, (ii) meet urgent needs for responding to human influenza outbreaks in a pandemic or pre-pandemic scenario, and (iii) support regional stockpiling. Support for regional stockpiles will complement existing efforts by partners to establish stockpiles and will constitute only a small part of the overall contribution. Criteria for accessing AIREF financing, and operational details are in Appendix 7.

73. AIREF financing will be made available to participating DMCs or international organizations, as needed. DMCs will be able to access this funding through a simple application procedure. While all DMCs are eligible to receive financing through this component, priority will be given to those that are at greatest risk from avian influenza, following criteria established by ADB and in consultation with WHO and FAO/OIE. A steering committee, headed by the Director General of the Regional and Sustainable Development Department (RSDD), will guide AIREF

implementation. Based on inputs from FAO, WHO, and other technical agencies, the steering committee will decide when to allocate resources. To ensure flexibility in resource allocation, ADB may transfer the resources to its resident missions, country offices, or regional offices under the country director's authority. Resources may also be transferred directly to an imprest account established by DMCs, following procedures described in paragraph 102.

74. AIREF may provide additional support to WHO, FAO, ASEAN, and other international organizations (if they enter into a grant agreement with ADB). International organizations may request urgent financing for activities related to avian influenza prevention and control, such as training workshops, enhancement of regional response teams, and emergency support for country offices.

#### **4. Project Management**

75. The Project will be supervised by an avian influenza secretariat located within ADB, including equipment and supplies required for project management. The secretariat will include a small number of consultants. Project resources will be used for workshops and meetings to coordinate with participating DMCs and international organizations. The secretariat will support regional and national coordination with other partners, as well as project auditing and financial management services. ASEAN, WHO, and FAO will manage their own operations in accordance with their own procedures, subject to agreement with ADB. This will allow ADB to focus on project coordination.

#### **D. Asian Development Fund IX Grant**

76. A \$25 million Asian Development Fund (ADF) grant will support the activities proposed in the Project, through international organizations and eligible DMCs actively involved in avian influenza prevention and control. ADF IX includes a grant program to combat HIV/AIDS and other infectious diseases. Grants can also be made to a regional institution for reasons of efficiency and to promote public goods. As international organizations involved with ADB member countries and concerned with the economic development of Asia and the Pacific region, ASEAN acting through the ASEAN Secretariat, FAO, and WHO satisfy the criteria for receiving ADF funds for the ultimate benefit of ADF borrowing DMCs. The rationale and purpose of the grants are outlined in Appendix 8.

#### **E. Special Features**

##### **1. Regional Cooperation**

77. Most initiatives to control avian influenza are specific to countries. However, infectious diseases cannot be stopped from spreading across borders without regional cooperation, and there is a significant gap in funding to improve regional technical capacity and readiness. The Project adopts a regional approach because avian influenza control is a regional public good, and individual governments will need significant support from regional organizations to plan, manage, and implement programs to respond to a pandemic. Regional collaboration will enable each country to draw on the expertise and experience of other countries; joint planning exercises will support action to solve multi-country issues; and pooled resources will enable each country to respond more effectively to avian influenza outbreaks that are beyond their individual capacity.

## 2. Flexible Implementation

78. The Project is being designed in coordination with other national and international initiatives and will be used for regional activities in accordance with ADB's *Disaster and Emergency Assistance Policy*.<sup>19</sup> ADB will apply its guidelines and procedures flexibly to lower the transaction costs of project implementation and significantly reduce the time for procurement and disbursement. Many of these features have been incorporated in the project design and in the grant agreements, after consultation within ADB and with the implementing agencies.

## 3. Preventive Action

79. The Project will directly contribute to the global effort to reduce the risks of an influenza pandemic and, in the medium term, to control emerging diseases. Actions will be taken to reduce the prevalence of influenza among birds and to quickly address influenza outbreaks among humans. The Project will support international efforts to contain the spread of an outbreak and mitigate its impact.

## 4. Complementarity with International Efforts

80. ADB is helping interested countries control avian influenza by using savings under the ongoing projects. This Project will work closely with these initiatives. In 2003, in response to the SARS outbreak, ADB financed a team of communicable disease specialists based in the WHO Western Pacific Regional Office in Manila.<sup>20</sup> The Project will build on these relationships. The Project will also complement two investment projects focusing on strengthening the human health surveillance system, the Preventive Health System Support Project in Viet Nam and the Regional Communicable Disease Control Project for the Greater Mekong Subregion (GMS).

81. ADB will play an important role in improving regional coordination in Asia and the Pacific Region. Currently, FAO, the World Bank, and WHO are leading global efforts to combat avian influenza. This role was recognized at the Beijing Conference, with the regional development banks focusing on financing and coordination at the regional level. ADB will provide coordination for many regional activities, serving as a link among the regional offices of FAO and WHO, DMCs, and other international organizations. ADB also brings important links to economic ministries (such as the Ministry of Finance, Ministry of Planning, and the Central Bank) in many countries. ADB has experience implementing projects and activities with Ministries of Agriculture and Health on a large scale in many DMCs which few other technical agencies have. ADB also has extensive experience with regional cooperation initiatives, such as the GMS Program and other similar regional and sub-regional initiatives. ADB will build upon this experience in coordinating project activities.

## F. Cost Estimates

82. The Project is estimated to cost \$38 million. Appendix 9 contains the cost estimates and financing plan for the Project. Supplementary Appendix B contains additional cost information, including classification of the budget by expenditure categories.

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<sup>19</sup> ADB. 2004. *Disaster and Emergency Assistance Policy*. Manila.

<sup>20</sup> Financed by 6108-REG (footnote 1).

**Table 1: Cost Estimates**  
(\$ million)

<b>Component</b>	<b>Total Cost</b>
<b>A. Base Costs</b>	
1. Regional Capacity Building	12.76
2. Regional Coordination	8.05
3. Avian Influenza Response Facility	14.50
4. Project Management	0.80
<b>Subtotal</b>	<b>36.11</b>
<b>B. Contingencies</b>	
1. Price Contingencies <sup>a</sup>	0.32
2. Physical Contingencies <sup>b</sup>	1.57
<b>Subtotal</b>	<b>1.89</b>
<b>Total</b>	<b>38.00</b>

<sup>a</sup> Estimated at 6.0% of project costs of components 1,2, and 4.

<sup>b</sup> Based on the international cost escalation factors for 2005–2009.

Source: Asian Development Bank estimates.

83. All contingencies in the Project will be managed by ADB until they are allocated. They may be allocated to international organizations and DMCs to support ongoing activities that need additional help because of unforeseen changes in prices or implementation.

#### **G. Financing Plan**

84. ADB will provide a total of \$38 million to support the Project as follows: (i) a grant of \$25 million from ADF; (ii) a grant of \$10 million from the Japan Special Fund (JSF), financed by the Government of Japan; and (iii) a grant of \$3 million from ADB's Technical Assistance Special Fund (TASF) Table 2 outlines the financing plan.

**Table 2: Grant Financing Plan**  
(\$ million)

<b>Source</b>	<b>Total Cost</b>	<b>%</b>
ADF	25.0	66
JSF	10.0	26
TASF	3.0	8
<b>Total</b>	<b>38.0</b>	<b>100</b>

ADF=Asian Development Fund, JSF=Japan Special Fund,  
TASF=Technical Assistance Special Fund.

Source: Asian Development Bank estimates.

85. ADB's Charter<sup>21</sup> specifies that ADB may provide financing to international or regional agencies or entities concerned with economic development of Asia and Pacific. Access to ADF funds for this purpose is permitted by Section 3.02 of the *Regulations of the Asian Development Fund*. As the disease poses a risk to the entire region, which will benefit from the public good aspects of the Project, DMCs not eligible for ADF resources must be included in the Project activities. JSF and TASF funds will be used to finance eligible activities in all participating DMCs. ADB's policy of not extending financing to countries in non-accrual status does not affect

<sup>21</sup> ADB.1966. *Agreement Establishing the Asian Development Bank*. Manila. (Article 11 Recipients and Methods of Operations. Reprinted with corrections June 2002).

regional and subregional ADF IX grant financing provided for projects at regional level in which benefits are indivisible. DMCs that are in non-accrual status will only receive support through international organizations under this Project and the Project will not directly finance DMCs in non-accrual status.<sup>22</sup>

86. For several activities from components 1 and 2 of the Project, ADB will provide grant financing directly to ASEAN through ASEAN Secretariat, FAO, and WHO for the benefit of DMCs. Before conducting activities in a DMC, each participating international organization shall receive confirmation from ADB as Executing Agency that the DMC does not object to ADB financing project activities in its territory. ADB will seek no-objection letters from all eligible DMCs.<sup>23</sup> For some activities under component 2, financing can be provided directly to interested DMCs. For component 3, ADB will provide grant financing directly to eligible and participating DMCs or to participating international organizations, depending on their needs. All grants will have terms and conditions substantially in accordance with those set out in the draft grant agreements presented to the Board.

87. The Project will use funds from ADF, JSF, and TASF in conformity with applicable rules and regulations. For activities carried out by international organizations (through components 1, 2, and 3), the Project will pool financing from all three sources. The proper use of ADF funds will be ensured through the following: (i) each international organization receiving funds under the Project will be required to issue a certificate confirming that the ADF funds have been used for the benefit of ADF-eligible borrowers only; and (ii) funds from ADF, TASF and JSF will be disbursed based on the agreed percentages. These measures will ensure that ADF IX funds are only used for the benefit of ADF-eligible borrowers. DMCs that receive financing directly from the Project (through components 2 and 3) will receive funds only from one source in accordance with standard practices and the nature of the support. The activities under components 1 and 2 (and some activities under component 3) of this Project are considered eligible for financing from TASF. While TASF funds are typically used for technical assistance, the Regulations of the TASF permit the use of TASF funds for financing the types of activities under components 1 and 2 (and some activities under component 3) of the Project.<sup>24</sup> The Government of Japan has agreed that JSF resources can be used to finance activities under the Project.

88. International organizations have already contributed substantial resources to support their own efforts to combat avian influenza, and development partners are contributing additional resources that will, in many cases, complement ADB's support. ADB's support to participating DMCs will complement their own efforts to control avian influenza and implement influenza pandemic preparedness plans. Tables A9.1 and A9.2 (Appendix 9) provide additional information on the allocation of resources to eligible countries.

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<sup>22</sup> ADB. 2004. *ADF IX Grant Programs: Instructions to Staff*. Manila. Particularly paragraph 19.

<sup>23</sup> ADB.1966. *Agreement Establishing the Asian Development Bank*. Manila. Article 14(iii) stipulates that ADB will not finance activities in the territories of a member country if that member objects to such activities.

<sup>24</sup> Section 1.01 of the Regulations of the TASF states, "The purposes of the Fund shall be to provide financing for the technical assistance and related operational activities of the Bank pursuant to the provisions of these Regulations. Section 3.01 of the Regulations of the TASF states in pertinent part, "the resources of the Fund may be used, alone or in combination with any other resources available to the Bank, for financing the cost of expert services and related facilities required for technical assistance or related operational activities (including staff training and development for developing member countries) to be carried out by the Bank."

## H. Implementation Arrangements

### 1. Project Management

89. **Executing Agency.** Consistent with the Project's regional approach and the need for rapid implementation and fund disbursement, the Project will be administered by ADB directly, through a small avian influenza secretariat established in RSDD. The secretariat will ensure overall project supervision and provide strategic guidance to implementing agencies. It will also handle the Project's administrative aspects and coordinate closely with ASEAN, FAO, and WHO. Appendix 10 outlines the Project's management structure. This arrangement will be reviewed periodically and may be adjusted.

90. **Implementing Agencies.** ASEAN Secretariat<sup>25</sup>, FAO, and WHO will implement most of the activities under components 1 and 2, in coordination with ADB. They will implement the project activities in accordance with their organizational focus and capabilities. Each international organization will have its own project management structure.

91. Component 3 will be managed directly by ADB through the avian influenza secretariat, and financial resources will be transferred as needed, including to ASEAN, FAO, and WHO, participating DMCs, and other international organizations. Financial management and control procedures will be established by ADB. The ADB country and regional directors may be authorized by the steering committee to directly procure equipment, services, and supplies. They may also disburse emergency funds to governments for high-priority activities such as surveillance in an area with an outbreak or support for quarantine enforcement.

92. **Steering Committee.** A steering committee will coordinate project activities. The steering committee will be headed by the director general, RSDD, and will have as members the directors general of ADB's five regional departments, the Strategy and Policy Department (SPD) and the Chair of the Health Sector Community of Practice. The steering committee will meet formally every 3 months to guide project implementation, policy dialogue, and building of regional capacity and cooperation. In case of an emergency, the steering committee may be called to meet on short notice to ensure quick ADB action.

### 2. Implementation Period

93. The Project will be implemented over 30 months, from March 2006 to August 2008.

### 3. Procurement

94. Procurement by international organizations, including ASEAN, FAO, and WHO, will be done according to each agency's procurement policies, acceptable to ADB. To ensure a balance between protecting intellectual property rights, equity, quality, and economy, participating international organizations will use FAO and WHO guidelines, as appropriate, to procure pharmaceutical and laboratory products. ADB will help pay standard and reasonable administrative charges to implementing international organizations.

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<sup>25</sup> The grant agreement for the Project will be signed with ASEAN Secretariat, which is mandated to provide for greater efficiency in the coordination of ASEAN organs and for more effective implementation of ASEAN projects and activities.

95. A participating DMC and ADB will identify a national implementing agency (or agencies) for procurement, following ADB's *Guidelines for Procurement* and the processes outlined in ADB's *Disaster and Emergency Assistance Policy*. Subject to agreement by the DMC and ADB, international shopping procedures or local competitive bidding, with procedures acceptable to ADB, may be used for contracts of \$200,000 or more. Direct purchase may be used for contracts worth less than \$200,000. This allows more flexibility to meet the DMC's needs. The DMC will use FAO and WHO guidelines, as appropriate, to procure pharmaceutical and laboratory products, subject to agreement by ADB.

96. Given the importance of responding quickly to the region's changing needs, and of facilitating work with potential cofinanciers and with international organizations with a diverse membership, the procurement of goods and services will be permitted from both ADB member and non-member countries.<sup>26</sup>

#### **4. Consulting Services and Training Activities**

97. Most consultants will be selected and engaged by participating international organizations or by participating DMCs. ADB will engage some consultants for project administration and may also contract, if requested, consultants directly for the use of DMCs and international organizations. The Project will finance an estimated 651 person-months of consulting services through components 1, 2, and 4. Additional consultants may be recruited under component 3. Appendix 11 summarizes consulting services and outline terms of reference.

98. International organizations will use their own recruitment procedures, acceptable to ADB, to recruit consultants (firms and individuals). ADB financing will support short- and long-term consultants in international organizations. ADB financing may only be used for staff directly supporting the objectives and goals of this Project. As much as feasible and based on ADB's assessment of their capacity, implementing agencies in DMCs will select and engage consultants in accordance with ADB's *Guidelines on the Use of Consultants* or other procedures acceptable to ADB. Consistent with ADB's *Disaster and Emergency Assistance Policy*, ADB will ensure that selection and engagement of consultants is done flexibly and on time. If requested by international organizations or DMCs, ADB may recruit consultants directly to work with the international organization or DMC.

99. Given the importance to respond quickly to changing needs of the region, and to facilitate work with potential cofinanciers and with international organizations with a diverse membership, the selection and engagement of consultants will be permitted from ADB member and nonmember countries.<sup>27</sup>

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<sup>26</sup> Pursuant to Chapter III, Article 14 (ix) of ADB's Charter, the Board of Directors, may by a vote of Directors representing not less than two thirds of the total voting power of members, permit procurement of goods and services from ADB non-member countries in appropriate circumstances. If the required affirmative vote of the Board of Directors is not obtained, goods and services for the Project will be procured only from ADB member countries.

<sup>27</sup> Pursuant to Chapter III, Article 14 (ix) of ADB's Charter, the Board of Directors, may by a vote of Directors representing not less than two thirds of the total voting power of members, permit procurement of goods and services from ADB non-member countries in appropriate circumstances. If the required affirmative vote of the Board of Directors is not obtained, goods and services for the Project will be procured only from ADB member countries.

100. The Project will support training and capacity building, organized by international organizations or DMCs. They will prepare training plans in consultation with ADB and will ensure that training is open to all qualified candidates. Appendix 12 provides an indicative list of training activities.

## 5. Disbursement Arrangements

101. Quick disbursement is the key to effective and timely response. For international organizations, ADB funds, which combine ADF, JSF, and TASF, will be drawn down on the basis of up to 12 months' estimated expenditure, subject to substantiation of previously disbursed funds. ADB will specify the percentage for each fund that should be allocated to each international organization. At the time of each drawdown, the international organizations shall submit to ADB a written application indicating, among other things, a forecast of the use of such funds. The amounts to be drawn down shall subsequently be replenished against (i) the statement of expenditures; and (ii) the submission of a financial report, as agreed in the grant agreement. The total drawdown shall not exceed the amount agreed by the international organizations and ADB.

102. For expenditures executed by DMCs under components 2 and 3, ADB will provide advances to the implementing agencies, as agreed by ADB, and each agency will establish imprest accounts at a commercial bank acceptable to ADB upon Project effectiveness, if required. The initial amount to be deposited in the imprest account will be no more than 12 months' estimated expenditures. Replenishment of advances will be supported by a statement of expenditures, and ADB may require invoices and receipts, as indicated in the grant agreement. Total disbursement will be up to the maximum amount agreed by the implementing agency and ADB. Only ADF-eligible DMCs may receive allocations from ADF funds in component 3. Detailed arrangements for establishing and operating the imprest account will be in accordance with ADB's *Loan Disbursement Handbook*,<sup>28</sup> as amended from time to time.

## 6. Financial Management, Auditing, and Reporting

103. **Financial Management.** ADB has extensive experience administering TA projects and has supervised numerous investment projects. ADB uses internationally recognized procedures for accounting and auditing, has an internal audit function, and hires an independent external auditor annually. FAO and WHO operate under sound and internationally recognized accounting and financial principles. ADB has collaborated with both on TA projects and is implementing an investment project with WHO.

104. **Accounts and Auditing.** The Project will apply sound accounting and auditing standards according to internationally accepted practices. Funds managed directly by ADB will be subject to same audit and reporting requirements as other resources managed by ADB.

105. ASEAN acting through ASEAN Secretariat, FAO, and WHO will carry out audits on time, using their own established procedures, acceptable to ADB, and submit to ADB certified copies of audited project accounts, financial statements, and the auditor's reports. Implementing agencies in participating DMCs will also provide ADB with an audited report, following internationally accepted practices. They will submit to ADB certified copies of audited project accounts, including the imprest accounts, statements of expenditures, and financial statements, the auditor's reports and opinions, and a management letter together with a report of actions

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<sup>28</sup> ADB. 2001. *Loan Disbursement Handbook*. Manila.

taken to improve financial management. The cost of auditing in DMCs may be financed by the Project.

106. **Anticorruption Measures.** Consistent with its commitment to good governance, accountability, and transparency, ADB reserves the right to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive, or coercive practices relating to the Project. To support these efforts, relevant provisions of ADB's *Anticorruption Policy*<sup>29</sup> are included in the grant regulations and the bidding documents for the Project. In particular, contracts financed directly by ADB in connection with the Project shall include provisions specifying the right of ADB to audit and examine the records and accounts of all contractors, suppliers, consultants, and other service providers as they relate to the Project.

## 7. Cofinancing

107. ADB is in active dialogue with a number of potential co-financiers to mobilize additional support. Such cofinancing may include grants and loans and may benefit from ADB credit enhancements, including ADB guarantee instruments. ADB has typically sought Board approval to administer loan or grant funds from cofinanciers only when cofinancing commitments are in place. In light of the need for expediency and efficiency in ADB's response, Management requests Board approval of the administration of any cofinanced funds obtained from development partners after Board approval. Approval of such cofinanced funds will be confirmed and approved by Management, and reported to the Board in accordance with the standard reporting procedures. This procedure will be adopted only if additional funds provided by cofinanciers will not materially alter or fundamentally affect the Project's objectives, purposes, and scope. Any proposed cofinancing that will materially affect the Project's objectives, purpose, or scope will be processed as a major change of scope and circulated to the Board in accordance with ADB procedures.

## 8. Advance Action and Retroactive Finance

108. The Project will support advance procurement action and retroactive financing to respond to the region's urgent needs. In particular, ADB will support preparation of bidding documents, opening of tenders, and award of contracts, as required by international organizations; retroactive financing of contracts of goods and services; and advance consultant recruitment and reasonable retroactive financing for international organizations in contracting consultants for project-financed activities. Retroactive financing is expected to be minor. For ASEAN, WHO and FAO, it may cover expenses 3 months before grant effectiveness and in no case may exceed 10% of the total amount allocated to an international organization. ADB has explained to participating international organizations that advance action does not commit ADB to finance the expenditure or the Project and that retroactive financing is only available after approval by ADB's Board of Directors.

109. ADB may also support advanced procurement and retroactive finance for participating DMCs. In this case, ADB will agree to support the procurement decision of the DMCs before the formal signing of the grant agreement. Retroactive financing may cover expenses 3 months before grant effectiveness and in no case may exceed 10% of the total amount allocated to a DMC. ADB will explain to the DMCs that advance action does not commit ADB to finance the expenditure under the Project and that retroactive financing is available only after the signing of the grant agreement.

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<sup>29</sup> ADB. 2005. *Anticorruption Policy*. Manila.

## 9. Project Performance Monitoring and Evaluation

110. ADB will carry out project performance monitoring and evaluation in accordance with the baseline indicators and the monitoring targets that have been incorporated into the design and monitoring framework (Appendix 1). A document on lessons identified will be prepared upon project completion. As the avian influenza threat is changing, indicators may also be modified. The avian influenza secretariat will monitor the overall avian influenza situation and provide periodic updates to ADB management.

## 10. Reporting and Project Review

111. When the Project becomes effective, the avian influenza secretariat will prepare a quarterly progress report summarizing (i) key activities that have been carried out and planned, (ii) outcomes and impact of project activities, (iii) delays and problems encountered and actions taken to resolve them, and (iv) coordination with other organizations and programs. Within 3 months of physical project completion, the secretariat will prepare a project completion report. One year after effectiveness, ADB will review implementation and its impact. The Project may be reoriented based on current conditions.

## IV. PROJECT BENEFITS, IMPACTS, ASSUMPTIONS, AND RISKS

### A. Benefits

112. **Regional Public Good.** The Project will promote regional cooperation as a public good. The Project will focus on strengthening the regional response to avian influenza, including strengthening links among countries, sharing information, and promoting risk-pooling and stockpiling of first-line goods. It will also help improve regional disease surveillance.

113. **Capacity Building.** Although the Project is being developed to meet the immediate needs of the region to fight avian influenza, this will also build up long-term regional capacity in animal health and public health. Training supported by the Project will be valuable even if the H5N1 virus does not mutate into a human influenza virus. Zoonosis, the animal-to-human transmission of disease, is a constant and increasing health concern, and surveillance and response capacity needs to be strengthened.

114. **Social Benefits.** The H5N1 epidemic is harming small-scale poultry farmers and threatens the livelihoods of many poor and near-poor households. Reducing the spread of highly pathogenic avian influenza among poultry and helping establish sustainable compensation schemes for culling diseased flocks will significantly improve the welfare of rural households.

115. A human influenza pandemic would significantly increase poverty. Poor households would be most at economic risk. Their access to the health system is limited and a catastrophic illness would send them deeper into poverty. It may also force many households to sell productive assets to pay for health care. The poor are more likely to die from illness. Appendix 13 contains the Project's summary poverty reduction and social strategy.

116. **Economic Benefits.** The Project will help prevent or delay an influenza pandemic and mitigate its impact. A pandemic would cost \$100 billion–\$300 billion for the Asia and Pacific region (excluding Japan). The Project, in coordination with global, regional, and national

initiatives, will lower the probability of a pandemic and minimize its economic impact. The Project is economically well justified. Appendix 14 contains the Project's economic analysis.

## **B. Project Risks**

117. **Epidemiological Uncertainty.** H5N1 is an avian virus rarely transmitted to humans. Influenza pandemics are the result of avian viruses mutating into a form that could be transmitted efficiently among humans. There is no guarantee that this will occur with the H5N1 virus. Pandemics can vary widely in virulence and efficiency in spreading, and they may affect different age groups differently. If the outbreak is mild, the Project may provide more support than the region needs. However, if the outbreak is more severe than expected, the Project's support may not be sufficient. ADB is prepared to offer additional resources through uncommitted loan resources and is preparing stand-by arrangements. Building regional capacity for disease surveillance and response will remain an important benefit of the Project with or without a pandemic.

118. **Direct Administration.** ADB will play a central role in administering the Project. The rationale for this approach is clear—reducing the number of steps for procurement and disbursement and avoiding delays. However, it also carries risks. While ADB has broad experience in administering TA projects, it generally supervises investment projects. Disbursement may be slow as both ADB and international organizations adapt to the features of the Project. ADB will work closely with several strong international organizations and establish an avian influenza secretariat to oversee the Project. It will also use simplified procedures, in accordance with ADB's *Disaster and Emergency Assistance Policy*. The Project was also designed with significant internal consultation to ensure that ADB's administrative requirements will not delay Project implementation.

119. **Donor Coordination.** There is growing interest in supporting the fight against avian influenza. A large number of bilateral and multilateral agencies have offered assistance to technical agencies and governments, which also have their own initiatives. Duplication is a risk, and governments may not have the capacity to manage the offered assistance. One of the primary goals of the Project is to improve regional coordination, including developing and implementing preparedness plans and surveillance activities, to allow countries to take full advantage of support.

120. **Low Demand.** While avian influenza is a major concern of governments throughout the world, they may shift priorities and lose interest if the H5N1 virus becomes less pathogenic or disappears or if some other event takes center stage. ADB may commit significant resources that may not be used for other priorities. Due to its flexible design, it would be easy to quickly adjust the Project. The Project is short, which also assures the quick return of project funds if they are not fully used.

## **C. Overall Assessment**

121. A pandemic would have substantial impact and could halt economic growth and poverty reduction. The Project will contribute to overall efforts against avian influenza. It will fill an important niche regionally by supporting coordination and regional activities. Because the course of avian influenza is so uncertain, the Project does have risks. However, the Project is justified based on its important contribution to the fight against avian influenza, and to regional capacity building against emerging diseases.

## V. ASSURANCE

122. In addition to the standard assurances, ASEAN Secretariat, FAO, and WHO have each given the following assurance, which is incorporated into the legal documents: the Project is expected to have no significant impact on environment, resettlement, indigenous people, or other vulnerable groups. If emerging needs require new Project activities during implementation that may have an impact on environment, resettlement, indigenous people, or other vulnerable groups, ASEAN Secretariat, FAO, and WHO will each inform ADB and will prepare and submit to ADB for approval plans, before requesting financing for that particular activity.

## VI. RECOMMENDATION

123. I am satisfied that the proposed grants would comply with the Articles of Agreement of ADB and recommend that the Board approve:

- (i) the grants not exceeding the equivalent of \$38,000,000 from ADB's Special Funds resources (Asian Development Fund, Technical Assistance Special Fund and Japan Special Fund) for the Prevention and Control of Avian Influenza in Asia and the Pacific Project including:
  - (a) the grant not exceeding the equivalent of \$6,490,000 to the Food and Agriculture Organization, from the Asian Development Fund (\$4,488,000), the Technical Assistance Special Fund (\$231,000), and the Japan Special Fund (equivalent of \$1,771,000), and such other terms and conditions as are substantially in accordance with those set forth in the draft Grant Agreement presented to the Board;
  - (b) the grant not exceeding the equivalent of \$12,479,000 to the World Health Organization, from the Asian Development Fund (\$8,630,000), the Technical Assistance Special Fund (\$445,000), and the Japan Special Fund (equivalent of \$3,404,000), and such other terms and conditions as are substantially in accordance with those set forth in the draft Grant Agreement presented to the Board;
  - (c) the grant not exceeding the equivalent of \$338,000 to the Association of Southeast Asian Nations Secretariat, from the Asian Development Fund (\$234,000), the Technical Assistance Special Fund (\$12,000), and the Japan Special Fund (equivalent of \$92,000) and such other terms and conditions as are substantially in accordance with those set forth in the draft Grant Agreement presented to the Board;
  - (d) the grants not exceeding the equivalent of \$18,693,000<sup>30</sup> to be provided to eligible and participating developing member countries of the Asian Development Bank and international organizations from the Asian Development Fund (\$11,648,000), Technical Assistance Special Fund (\$2,312,000), and Japan Special Fund (equivalent of \$4,732,000), and such other terms and conditions as are substantially in accordance with those set forth in the draft Grant Agreement presented to the Board;

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<sup>30</sup> This amount also includes the costs of project administration by the Asian Development Bank, through the avian influenza secretariat.

- (ii) the administration by ADB of loans or grants in accordance with the proposal set out in paragraph 107 of this Report for the Prevention and Control of Avian Influenza in Asia and the Pacific Project, to be provided by any development partner or cofinancier on a loan or a grant basis, after the date of the Project's Board approval; and
- (iii) by a vote of the Directors, representing not less than two thirds of the total voting power of the members, that goods and services, including consulting services, for the Project be procured from ADB member and nonmember countries. If the required affirmative vote of Directors is not obtained, goods and services, including consulting services, for the Project will only be procured from ADB member countries.

Haruhiko Kuroda  
President

03 March 2006

## DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/ Indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks
<p><b>Impact</b></p> <p>Reduced social and economic disruption caused by avian and human influenza outbreaks in Asia and the Pacific region</p>	<ul style="list-style-type: none"> <li>• Economic growth in the region remains as projected in <i>Asian Development Outlook (ADO)</i></li> <li>• Trends in poverty reduction do not slow down</li> </ul>	<ul style="list-style-type: none"> <li>• ADO 2009</li> <li>• ADB's poverty reduction progress report 2009</li> </ul>	<p><b>Assumptions</b></p> <ul style="list-style-type: none"> <li>• No other epidemic affects the region</li> <li>• Other natural calamities or/and economic and political problems may affect the trends in economic growth and poverty reduction</li> </ul>
<p><b>Outcome</b></p> <ul style="list-style-type: none"> <li>• Containing infection at source from H5N1 avian influenza</li> <li>• Enhanced preparedness for a potential human influenza pandemic in Asia and the Pacific region</li> </ul>	<ul style="list-style-type: none"> <li>• Number of H5N1 influenza outbreaks in poultry; poultry mortality remain below 2004–2005 levels in the region</li> <li>• Response mechanisms for human influenza pandemic are in place in the region</li> </ul>	<ul style="list-style-type: none"> <li>• Reports from WHO and FAO</li> </ul>	<p><b>Assumption</b></p> <ul style="list-style-type: none"> <li>• Sufficient resources and coordination mechanism will be in place without undue delay</li> </ul>
<p><b>Outputs</b></p> <p><b>Component 1: Regional capacity building</b></p> <p>1.1. Strengthened national capacities for containing avian influenza outbreaks through support from ASEAN and FAO</p> <p>1.2. Strengthened national capacities to prevent H5N1 human influenza and prepare for a potential human influenza pandemic with support from WHO</p>	<ul style="list-style-type: none"> <li>• Improved surveillance systems for avian influenza</li> <li>• Trained and well-resourced teams in place to rapidly stamp out any reported outbreaks in all countries by the end of the first year</li> <li>• National plans for influenza pandemic preparedness drawn up, rehearsed, and resourced in all DMCs by the end of 2006</li> </ul>	<ul style="list-style-type: none"> <li>• Reports from ASEAN and FAO</li> <li>• Reports from WHO and FAO</li> </ul>	<p><b>Assumptions</b></p> <ul style="list-style-type: none"> <li>• Adequate resources will be available for compensating poultry farmers to encourage quick reporting</li> <li>• Uncertainty of outbreak will not dilute the high level political commitment</li> </ul>
<p><b>Component 2: Regional coordination</b></p> <p>2.1. Improved coordination between affected countries and technical agencies for regular exchange of epidemiological information, laboratory specimens, and supplies</p>	<ul style="list-style-type: none"> <li>• A system for regular sharing of epidemiological and laboratory information in place by the end of 2006.</li> <li>• Regular meetings of border and quarantine officials</li> </ul>	<ul style="list-style-type: none"> <li>• Project progress reports</li> </ul>	<ul style="list-style-type: none"> <li>• Government and donors will coordinate exchange of information</li> <li>• Government and donors will provide regular updates on support</li> </ul>

Design Summary	Performance Targets/ Indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks
2.2. Rapid regional field response and containment capacity	<ul style="list-style-type: none"> <li>• A cadre of about 100 national and international professionals trained by the end of 2006</li> <li>• All countries and WHO linked through telecommunications systems by the end of September 2006</li> <li>• Field information management system adopted</li> <li>• A regional global outbreak and response network developed by the end of the project period</li> </ul>	<ul style="list-style-type: none"> <li>• Project progress report</li> </ul>	<ul style="list-style-type: none"> <li>• Appropriate national professionals will be available and willing to participate</li> </ul>
2.3. Enhanced risk communication efforts in all countries	<ul style="list-style-type: none"> <li>• Messages related to avian influenza risks communicated to different target groups according to WHO and FAO guidelines by the end of the Project</li> </ul>	<ul style="list-style-type: none"> <li>• Reports from WHO and FAO</li> </ul>	<ul style="list-style-type: none"> <li>• Countries have resources for well-designed communication activities</li> <li>• Target groups have basic access to health care</li> </ul>
<p><b>Component 3: Avian influenza response facility</b></p> <p>3.1. A flexible and fast-disbursing mechanism in place to address the needs of an evolving and uncertain avian influenza epidemic, particularly to support regional stockpiles of drugs and equipment, national efforts for containing avian influenza outbreaks, and national response to potential pandemic</p>	<ul style="list-style-type: none"> <li>• Regional stockpile of drugs and equipment established by the end of 2006</li> <li>• Avian influenza outbreak containment efforts not constrained by lack of administrative budget in low-income countries</li> <li>• Quick support provided for early action to contain the pandemic</li> </ul>	<ul style="list-style-type: none"> <li>• Reports from WHO and FAO</li> <li>• Project progress reports</li> </ul>	<p><b>Assumptions</b></p> <ul style="list-style-type: none"> <li>• WHO will be able to quickly develop guidelines and logistics arrangements for regional stockpiles</li> <li>• ADB resident missions will be able to quickly respond to countries' needs</li> </ul> <p><b>Risks</b></p> <ul style="list-style-type: none"> <li>• Containment of avian influenza outbreaks hampered by lack of resources in low-income countries</li> </ul>
<p><b>Component 4: Project administration</b></p> <p>4.1. ADB develops capacity to administer an investment project with a number of different implementing agencies</p>	<ul style="list-style-type: none"> <li>• Disbursement targets</li> <li>• Coordination meetings and review missions</li> </ul>	<ul style="list-style-type: none"> <li>• Internal ADB records</li> </ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>• ADB cannot contract appropriate consultants (too few specialists available)</li> <li>• Delays are caused by incompatibility of procurement and consultant guidelines</li> </ul>

Activities with Milestones	Inputs
<p><b>Component 1: Regional capacity building</b></p> <p>Containing infection at source</p> <p>1.1.1. Strengthening the FAO network of expertise on avian influenza</p> <p>1.1.2. Strengthening ASEAN expertise on avian influenza</p> <p>1.1.3. Support for strengthening laboratory services and training</p> <p>Preventing and preparing for potential pandemic</p> <p>1.2.1. Establish regional operational support teams with WHO</p> <p>1.2.2. Support strengthening of laboratory services and training in infection prevention, case management, epidemiology, emergency preparedness</p> <p><b>Component 2: Regional coordination</b></p> <p>Strengthening networks</p> <p>2.1.1. Support existing mechanisms for improved coordination and exchange of information through meetings, workshops, websites</p> <p>2.1.2. Support existing regional networks (for avian influenza, first, but ultimately for emerging diseases) related to epidemiology, laboratories, and Information sharing</p> <p>Regional capacity for rapid field response and containment</p> <p>2.2.1. Development of standard operating procedure;</p> <p>2.2.2. Training of a cadre of 100 national and international professionals, adaptation of FIMS</p> <p>2.2.3. Timely development of global outbreak and response network networks</p> <p>2.2.4. Field logistics, mobility, and communications to support the rapid response team</p> <p>2.2.5. Support for information and communication technology, strengthen the IT network, maintain a regional website through WHO</p> <p>Risk communication</p> <p>2.3.1. Develop communication plans for different target groups, including governments (for strengthening access to health services)</p> <p>2.3.2. Recruit consultants to help build the capacity of country agencies and organization's and develop regional and national risk communication strategies</p> <p>2.3.3. Develop prototype communication material for national and regional use</p> <p><b>Component 3: Avian influenza regional facility</b></p> <p>3.1.1. Support regional stockpiles established by WHO</p> <p>3.1.2. Support urgent needs for containing national avian influenza outbreaks through resident missions</p> <p>3.1.3. Support urgent responses</p> <p><b>Component 4: Project management</b></p> <p>4.1 Establish a project management infrastructure</p> <p>4.2 Support project operations with technical partners and affected countries</p> <p>4.3 Monitor and evaluate project operations</p>	<ul style="list-style-type: none"> <li>• ADB: \$28.0 million <ul style="list-style-type: none"> <li>- ADF Ggrant: \$25 million</li> <li>- TASF grant: \$3 million</li> </ul> </li> <li>• JSF grant: \$10.0 million</li> <li>• Component 1: \$12.46 million</li> <li>• Component 2: \$8.34 million</li> <li>• Component 3: \$14.50 million</li> <li>• Component 4: \$0.60 million</li> <li>• Contingencies: \$2.10 million</li> </ul>

ADB = Asian Development Bank, ADF = Asian Development Fund, ADO = Asian Development Outlook, ASEAN = Association of Southeast Asian Nations, DMC = Developing Member Countries, FAO = Food and Agriculture Organization, IT = Information Technology, JSF = Japan Special Fund, TASF = Technical Assistance Special Fund, WHO = World Health Organization

## INFLUENZA: SEASONAL, AVIAN AND PANDEMIC INFLUENZA

### A. Seasonal Human Influenza

1. Influenza (the flu) is a contagious respiratory disease caused by influenza viruses. For most patients, fever, headache, extreme tiredness, dry cough and sore throat, runny nose and muscle aches will last 2 to 5 days and most will recover within one to two weeks. But in the very young, the elderly and people with chronic diseases, influenza poses a serious risk, at times leading to death. Influenza usually requires only symptomatic treatment. Antibiotics, which cannot attack the virus, are used only to treat complications (pneumonia, bronchitis, ear infections) due to secondary infections caused by bacteria. Antiviral drugs now exist, which are useful adjuncts in prophylaxis and treatment for more vulnerable people, and help reduce influenza-related hospitalization and mortality

2. Epidemics of influenza typically occur every year, during the winter months in temperate regions and spread rapidly around the world in seasonal epidemics. The flu every year infects a significant portion of the population (ranging from 5% to 20%, depending on the strain), leading to the death of a small percentage (600,000 to 1.5 million people worldwide,<sup>1</sup> but imposing a considerable economic burden. Studies, usually done in the context of the cost-effectiveness of vaccination in high income countries, have shown that regular flu outbreaks are quite costly in terms of lost productivity and additional medical care.<sup>2</sup> Advances in public health and curative medicine and the developments of vaccines have greatly reduced the impact of ordinary (seasonal) flu outbreaks. Antiviral medications have been developed and shown to be effective, when taken soon after the onset, in reducing the length of illness and in lessening its symptoms. They are also generally effective as prophylaxis in healthy adults after exposure to a potential infection. They also appear to be effective for high-risk populations and children.<sup>3</sup> There are two classes of antiviral drugs, the adamantane derivatives and the neuraminidases inhibitors. Some resistance to antiviral drugs has appeared but neuraminidases inhibitors —zanamivir (Relenza®) and oseltamivir (Tamiflu®) — remain effective when taken correctly and timely.

3. Influenza A and B are the two types of influenza viruses that cause epidemic human disease.<sup>4</sup> The most dangerous outbreaks are “Type A” caused by Influenza A viruses, which can also infect other mammals (pigs, horses, cats) and birds. They are responsible for epidemics and pandemics (all pandemics viruses are type A). Influenza B only affects humans and is responsible for sporadic outbreaks of illness. Influenza A viruses are further categorized into subtypes on the basis of two surface antigens: hemagglutinin (H) and neuraminidase (N). There are 16 different H antigens and 9 different N antigens that have been identified to date, used to name the viruses (such as “H1N1”, “H3N2”, “H7N7”, and “H5N1”). The influenza viruses are further separated into groups on the basis of other antigens, and these different groups (strains) may have different pathogenicity, even if they are classified in the same HN type.

4. The influenza viruses are very unstable, and when the virus replicate, there are frequent small mutations resulting in antigenic changes (i.e., antigenic drift) resulting in new influenza viruses.<sup>5</sup> Immunity to the surface antigens (H and N) reduces the likelihood of infection and severity of disease if infection occurs. But immunity against one influenza virus type or subtype

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<sup>1</sup> In the United States, 200,000 people are hospitalized and 36,000 people die on average due to the flu every year.

<sup>2</sup> Meltzer, M., Cox, N., and Fukuda, K. 1999. The Economic Impact of Pandemic Influenza in the United States: Priorities for Intervention. *Emerging Infectious Diseases*. Vol. 5, No. 5. 659–671.

<sup>3</sup> Moscona, A. 2005. Neuraminidase Inhibitors for Influenza. *New England Journal of Medicine*. 353:1363–1373

<sup>4</sup> A third type, Influenza C, also only affects humans but rarely causes disease symptoms.

<sup>5</sup> <http://www.cdc.gov/flu/>.

does not protect against another type, subtype or even a strain with a new antigen. The seasonal (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. The annual vaccine contains the most likely strains of the virus which probably will attack the next year. The contents of the flu vaccine is determined every year by WHO. But when a major change occurs in the virus (i.e., antigenic shift), 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.

## **B. Avian Influenza - A H5N1**

5. Avian influenza viruses normally infect only birds (including chicken, ducks, geese, quails, and wild birds), and, occasionally, pigs and other mammals. Wild birds, especially waterfowls, are a natural reservoir of the viruses and some species may be healthy carriers of influenza viruses. Domestic poultry (especially chicken) are 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 in other similar outbreaks, spread of the virus was stopped by immediately culling the whole population of infected chickens.

6. The present avian influenza outbreaks caused by the H5N1 strain, which first appeared in Hong Kong, China in 1997, started in December 2003. H5N1 has spread widely in East Asia and has now reached Africa, Europe, the Middle East and South Asia. In Asia, particularly in the Mekong region, the People’s Republic of China (PRC) and in Indonesia, H5N1 is now endemic and firmly established. Since 2003, up to 150 million birds have died or been culled. As of 1 March 2006, WHO confirmed 174 cases and 94 fatalities.<sup>6</sup> To date, most known human infections have been in Asia, largely among farm workers. 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.<sup>7</sup> However, this will be true only if avian flu remains confined to animals. But another scenario is possible, when H5N1 virus acquires the capacity to easily be transmissible, passing directly from human to human, and becomes responsible for a pandemic.

7. Patients typically suffer high fever and multiple symptoms including diarrhea, vomiting, abdominal pain, and bleeding in gums and teeth. Unlike in a typical influenza outbreak, most patients contract viral pneumonia, which is not responsive to antibiotic treatments. Current protocols recommend prompt treatment with antiviral neuraminidase inhibitors for both adults and children. However, antiviral neuraminidase inhibitors appear to be only partially effective in fighting the infection. They do not cure the patient but they may increase the survival rate and lower the possibility of transmission. In addition, oseltamivir is recommended as post-exposure prophylaxis.

<sup>6</sup> Taken from the World Health Organization’s Epidemic and Pandemic Alert and Response webpage, available at [http://www.who.int/csr/disease/avian\\_influenza/pandemic/en/index.html](http://www.who.int/csr/disease/avian_influenza/pandemic/en/index.html), accessed on 23 February 2006.

<sup>7</sup> Asian Development Bank. Avian Flu: An Economic Assessment for Selected Developing Countries in Asia. *ERD Policy Brief No. 24*. Manila March 2004.

8. Compared with the great number of birds infected and the wide geographical area involved, the number of human infections by H5N1 remains insignificant, reflecting the very poor “efficiency” of the virus to affect humans. Only people (mainly poor farmers) in contact with sick or dead chickens in their backyard seem to have been infected, with only very limited possible transmission of the virus between humans.

### C. Human Influenza Pandemic

9. Human influenza pandemic is a worldwide outbreak of human influenza. A pandemic can start when three conditions have been met: a new influenza virus subtype emerges; it infects humans, causing illness; and it spreads easily among humans. The virus can improve its transmissibility among humans via two principal mechanisms. The first is reassortment, in which genetic material is exchanged during co-infection of a human or pig. Reassortment between human and avian viruses could result in a fully transmissible pandemic virus, announced by a sudden surge of cases with explosive spread. The second mechanism is a more gradual process of adaptive mutations, whereby the capability of the virus to bind to human cells increases during subsequent infections of humans. Adaptive mutation, expressed initially as small clusters of human cases with some evidence of human-to-human transmission, would probably give the world some time to take defensive action.<sup>8</sup>

10. The most severe influenza pandemic occurred in 1918–1919, responsible for 40–50 million deaths worldwide. This pandemic, commonly known as the Spanish Flu, was caused by the influenza A/H1N1 virus, recently shown to be an avian influenza virus that jumped the species barrier directly to humans.<sup>9</sup> The other two influenza pandemics of the 20th century, in 1957 (H2N2) and 1968 (H3N2) were both due to avian influenza viruses that recombined with human strains. While it is not clear where the 1918 strain originated, the 1957 and 1968 strains both originated in Asia. The severity of the Spanish Flu was due, in part, to the circumstances (first World War 1914–1918), including extremely poor sanitary conditions in the trenches and poor nutrition. It spread quickly with the demobilization of soldiers at the end of the war.<sup>10</sup> Today, vaccines, antibiotics and antiviral drugs will be available. Still, WHO and the CDC estimate that a pandemic is likely to result in 2 million 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:

- (i) Given the large movements of goods, services, and people, the virus may spread rapidly, leaving little or no time to prepare.
- (ii) Antiviral drugs and antibiotics, and pandemic vaccines when developed, will be in short supply and unequally distributed. It will take several months before any vaccine becomes available.
- (iii) Medical facilities will probably be rapidly overwhelmed. Moreover, widespread illness may result in shortage of personnel to provide essential community services.

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<sup>8</sup> [http://www.who.int/csr/disease/avian\\_influenza/avian\\_faqs/en/](http://www.who.int/csr/disease/avian_influenza/avian_faqs/en/).

<sup>9</sup> Taubenberger, J., Reid, A., Lourens, R., Wang, R., Jin, G., and Fanning, T. 2005. Characterization of the 1918 influenza virus polymerase genes. *Nature*. Vol. 437/6, 889–893.

<sup>10</sup> Byeryl, C. 2005. *Fever of War: The Influenza Epidemic in the US Army During World War I*. New University Press: New York.

11. To monitor the epidemiological changes related to the influenza viruses and prepare for a possible human influenza pandemic, WHO has developed a classification of the risk of a human influenza pandemic into stages.<sup>11</sup> This is summarized in Table A2.1. As of February 2006, the global level of alertness is at stage 3.

**Table A2.1: Influenza Pandemic Stages**

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<b>Interpandemic Period</b>	
Phase 1	No new influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection may be present in animals. If present in animals, the risk of human infection or disease is considered to be low.
Phase 2	No new influenza virus subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk of human disease.
<b>Pandemic Alert Period</b>	
Phase 3	Human infection(s) with a new subtype, but no human-to-human spread, or at most rare instances of spread to a close contact.
Phase 4	Small cluster(s) with limited human-to-human transmission but spread is highly localized, suggesting that the virus is not well adapted to humans.
Phase 5	Substantial Pandemic Risk: Larger cluster(s) but human-to-human spread still localized, suggesting that the virus is becoming increasingly better adapted to humans, but may not yet be fully transmissible.
<b>Pandemic Period</b>	
Phase 6	Pandemic: increased and sustained transmission in general population.

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Source: Adapted from World Health Organization. 2005.

<sup>11</sup> World Health Organization. 2005. *WHO Global Influenza Preparedness Plan*. Accessed at [www.who.int/csr/disease/avian\\_influenza](http://www.who.int/csr/disease/avian_influenza) on 21 November 2005.

## REGIONAL NEEDS ASSESSMENT

### A. Issues

1. Controlling the spread of the avian influenza and other emerging communicable diseases is a regional public good. Countries benefit from the preventive actions taken in neighbor countries and likewise suffer when neighboring countries ignore the risk of avian influenza. All countries benefit from public health actions carried out by agencies at the regional level. No country, on its own, will be able to control avian influenza completely.

2. The cost of fighting avian influenza can be divided into several levels. First, there are needs at the country level, for the efforts of national and local governments, and at the regional and global levels, to support multi-country initiatives. Financing multi-country initiatives is important because of the economies of scale in joint work and the need for multi-country coordination. Second, while efforts to fight avian influenza must multisectoral, they can be broadly divided into efforts into (i) efforts to control avian influenza in the bird population, (ii) efforts to prevent the disease from mutating into a human-transmissible influenza, and (iii) efforts to mitigate and recover from an influenza pandemic. Finally there is a time element. Avian influenza poses an immediate challenge to the region and requires immediate action, usually in the next 2 years. The current outbreak of avian influenza has also highlighted the importance of increased investment to improve animal and human health.

3. Assessing the region's needs for avian influenza prevention and control are complicated by the great uncertainty about the future course of the disease and the risk that it presents to human health. With guidance from the World Health Organization (WHO) and the Food and Agriculture Organization (FAO), the World Bank has made an initial needs estimate at the country level.<sup>1</sup> ADB has worked closely with FAO and WHO in understanding their regional needs for avian influenza control.

### B. Country Needs

4. Country needs can be divided into several major components. First, coordination and communication are essential, as the lack of information can substantially increase the economic impact of any disease outbreak as local authorities and the public tend to overreact. Second, surveillance and early warning systems have to be strengthened both for animal health and for human health. Third, countries need to strengthen their response capacity to avian influenza outbreaks. Finally, there is a need to strengthen national health systems, both in their capacity to respond to local outbreaks and in surge capacity to address generalized epidemics. Animal and human health systems will have to finance a wide range of items, ranging from laboratory equipment to protective clothing to overtime payments for staff.

5. The World Bank's initial estimates for East Asia, Southeast Asia (including the Mekong Region), the Pacific, and South Asia show that the developing countries require \$711 million for the next 2 to 3 years for their avian influenza prevention and control programs. The World Bank estimates that these countries collectively can finance, without external support, between \$240 million to \$380 million. Central Asian and Caucasus countries probably need an additional \$45 million, with financing capacity in the range of \$10 million to \$15 million.

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<sup>1</sup> World Bank. 2005. *Avian and Human Influenza: Financing Needs and Gaps*. Accessed on 12 January 2006 on [www.worldbank.org/avianflu](http://www.worldbank.org/avianflu).

6. These probably underestimate the total need in the region. The estimates tend to focus heavily on needs for animal health and underestimate the potential needs in several major poultry producing countries. Although the needs of the health system are factored, there is reason to expect that they are several times higher than what is contained in the World Bank estimates. For example, initial ADB estimates, based on influenza models developed by the Centers for Disease Prevention and Control in the United States suggest total health care costs, show health care costs in the range of \$10 billion during an influenza pandemic. While most of this cost would be borne by households, it suggests significant costs to the governments in affected regions.

### **C. Regional Needs**

7. Even with additional finances, the capacity of many countries to implement avian influenza control activity is limited. Although most countries are developing pandemic preparedness plans, the quality of these plans varies greatly. To ensure that the additional resources are used efficiently, governments will need support from technical agencies to support their capacity.

8. FAO and WHO are the two main technical agencies in avian influenza prevention and control activities. They serve both as coordinating agencies, working with governments to ensure that information is shared and responses are consistent, and as technical resource centers, providing technical support to implementation.

9. Although international agencies tend to have large budgets, these budgets are largely tied to pre-existing programs and there is little room for reallocating resources among programs. Likewise, much of the staff is assigned to programs. Both FAO and WHO have allocated significant amounts of their discretionary and emergency response budgets to focus on avian influenza and they have made estimates of their additional resource needs at the regional level.

10. Much of the support provided to international organizations will benefit countries, particularly poorer countries. Support at the regional level makes sense due to the significant economies of scale that are generated for large scale procurement and training. In addition, international organizations can target countries that most need support, which gives additional flexibility in the face of uncertainty.

11. There are a number of key needs that can be best organized at the regional level. Establishing regional stockpiles of drugs and medical equipment and supplies allows the region to prepare strategically for a human influenza outbreak. By preparing a stockpile, health authorities can respond quickly to a new influenza cluster and take actions to prevent further outbreak. Since initial outbreaks are likely to be limited geographically, assembling stockpiles at the regional level introduces important economies of scale.

12. The exchange of information is a critical element in strengthening pandemic preparedness. Organization of regional training increases the access of animal and human health workers to specialist training that can be offered economically in their own country. Regional networking (through workshops, communication systems, and the like) also plays an important role in enhancing the exchange of information.

**13. Food and Agricultural Organization.** FAO, in cooperation with the World Organization for Animal Health (OIE), focuses on controlling avian influenza. They provide technical support to governments, in the form of training, support for laboratories, and the provision of technical

specialist. FAO also can provide emergency response funds to help countries with avian influenza outbreaks. FAO has made estimates of its needs at the global level, referring to resources used at its headquarters that are not assigned to any particular region, and regional level resources, for activities and networks done at the regional level and the needs of FAO's regional offices.<sup>2</sup> Central to FAO's needs is the Emergency Centre for Transboundary Animal Disease (ECTAD), which serves a multidisciplinary response unit. ECTADs will be established at both the global and regional levels. FAO will provide support to regional laboratories that will provide support to country level laboratories.

14. Based on the needs for 2 years, and following the FAO estimates, regional needs are at least \$18.6 million, factoring in only support provided at the regional level (largely implemented by FAO's Bangkok office). FAO also proposes to strengthen regional reference laboratories for testing for avian influenza, with an expected cost of \$29 million. Part of this cost is focused on Asia and the Pacific region.

**15. The World Health Organization.** Globally, WHO is divided into six regions that have significant autonomy. The Western Pacific Regional Office (WPRO), with its headquarter in Manila, and South East Asia Regional Office (SEARO), based in Delhi, cover most of the Asia and Pacific Regional Office. Afghanistan, Pakistan, and the Central Asian countries are in the Eastern Mediterranean Regional Office (EMRO) and in the European Regional Office (EURO). Most resources are allocated through regional offices, with WHO headquarter focusing on maintaining consistency and regional coordination.

16. Support for regional activities in WPRO and SEARO require approximately \$26.0 million. This includes regional cooperation activities, such as regional response teams and rapid interventions, risk communication and information sharing, and establishing regional stockpiles. Support for EMRO and EURO that is likely to benefit countries in Asia and the Pacific region is approximately \$11.0 million, for similar activities. One important component of WHO's support is the Global Outbreak Alert and Response Network (GORAN), which aims to improve the sharing of information and enhance transparency.

**17. Other Organizations.** A number of other organizations and networks are active at the regional level. The Association of Southeast Asian Nations (ASEAN) is proposing to increase subregional coordination in both the areas of animal and human health and to improve the organization's own capacity to respond outbreaks in the future. The Asia-Pacific Economic Cooperation is sponsoring a number of events to raise business, government, and public awareness on avian influenza.

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<sup>2</sup> FAO. 2005. *FAO's Proposal for a Global Programme*. Rome.

## EXTERNAL ASSISTANCE FOR AVIAN AND HUMAN INFLUENZA

1. Avian influenza is a major challenge that could impact the health and economic progress of the whole world. Since the disease spreads quickly across international borders, there has been a great deal of international attention focusing on controlling its spread and reducing the risk of human influenza pandemic. The international community has been mobilized and is committing significant resources to prevent and control avian influenza. Since the situation is rapidly evolving and there is a growing realization that a risk of a pandemic is real, the global response is also changing.
2. The international community has organized a series of international meetings to discuss the threat posed by avian influenza to animal health and the potential of human influenza pandemic. These meetings have discussed strategy, response, and financing needs. A general consensus has been met about the future direction of action. These meetings have also served to develop a sense of urgency and a high level of commitment for combating the challenge of avian influenza and preventing a human pandemic.
3. There is wide agreement that the best strategy would be to minimize the threat at source through prevention of the spread of the avian influenza virus. This would entail timely notification of avian influenza outbreaks in domestic and wild birds and rapid containment through poultry culling and vaccination as indicated. Early warning and surveillance systems for animal and human influenza are critical to an effective response, and include provision of appropriate compensation to livestock farmers, especially for backyard poultry farming. The window of opportunity to prevent a pandemic is short. The experience of SARS<sup>1</sup> shows that transparent and immediate reporting is essential, as is the open sharing of virus samples to facilitate rapid identification of the virus subtype and, when needed, preparation of an effective human vaccine.
4. It has generally been acknowledged that at present many governments are not ready to cope with avian influenza outbreaks, much less a human pandemic. Increasing preparedness is vital in every country and in every region. As the disease can easily cross borders, it has been recognized that there is a need for all countries and regions to develop comprehensive plans that integrate interventions related to animal and human health. These plans should also consider possible disruptions to essential services in case of a pandemic and strengthen existing surveillance systems and response mechanisms. The international community has proposed that these plans can become the basis for coordinated financial and technical support from bilateral donors and international agencies, with current plans for a major meeting focusing on financing needs in January 2006.
5. Because of the evolving nature of support, it is difficult to accurately measure the contribution of each financier. Contributions have been made to international organizations, primarily the Food and Agricultural Organization (FAO) and the World Health Organization (WHO), directly to governments in affected countries, and through existing and bilateral disease control programs. Significant resources have been pledged, subject to the design of the project. Many of the resources have been committed in kind, including expert visits, training fellowships, and the donation of equipment and supplies. It appears that Asia and the Pacific region have

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<sup>1</sup> Severe Acute Respiratory Syndrome.

received most of the contributions. Below is a summary of some of the major contributions and pledges to date, based estimates from the FAO<sup>2</sup> and ADB staff review.

6. **Asian Development Bank.** The Asian Development Bank (ADB) has provided emergency assistance to the governments of Cambodia, Lao's People's Democratic Republic (Lao PDR), and Viet Nam through a regional technical assistance program of around \$200,000. It is also supporting a communicable disease response team based at WHO that has been instrumental in supporting surveillance and response of affected countries. ADB has committed \$68 million in new health projects that can be "retrofitted" to support avian influenza control activities, at least \$75 million in additional resources from project savings and reallocations, and an additional \$300 million in new loans, if requested by affected countries.

7. A grant for Regional Communicable Diseases Control Project for the countries of Cambodia, Lao PDR, and Viet Nam was approved on 21 November 2005 for \$30 million. The Project will strengthen the regional capacity to control emerging and endemic communicable diseases within the framework for regional collaboration. It will (i) strengthen national surveillance and response systems, (ii) develop models of communicable diseases surveillance and control in different provinces based on local priorities, and (ii) improve regional collaboration in communicable diseases control (CDC) and health system development. The targeted provinces are important for CDC in terms of regional connectivity, high burden of infectious diseases, and the level of vulnerable populations.

8. **Australia.** The Government of Australia has been one of the largest contributors to avian influenza prevention and control activities. As of October 2005, it has allocated around \$19.2 million, largely through regional organizations and international technical organizations such as WHO and FAO. Support has included equipment, experts, and supplies. It has also intensified training of national experts to strengthen the technical capacity of affected countries. This includes support at the regional level and at the country level. Indonesia has been the largest single recipient of support. In January 2006, it committed around \$75 million.

9. **Germany.** The Government of Germany has provided around \$7 million (as of May 2005), largely to support the implementation of the global strategy. Germany has also provided support at the country level, largely through trusts funds at FAO. Germany plans to allocate around \$28 million to support scientific research and pandemic preparedness, largely in Southeast Asia.

10. **Japan.** Japan has been very active in providing regional and national support, working with governments and international organizations such as ADB and the World Bank. It has committed \$10 million to ADB for its regional project and more than \$4 million to other organizations, through existing trust funds. This aid has largely focused on Viet Nam and regional activities. Japan has also provided significant support in kind. In January 2006 it committed around \$135 million, including a contribution to the World Bank's multi-donor trust fund.

11. **United States.** Working mainly at the regional level, the Government of the United States has provided substantial support to international organizations and directly through support from the Centers for Disease Control and the United States Agency for International

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<sup>2</sup> FAO/OIE/WHO "Global Strategy for the Progressive Control of Highly Pathogenic Avian Influenza (HPAI)" Available at <http://www.fao.org/ag/againfo/subjects/documents/ai/HPAIGlobalStrategy31Oct05.pdf>, accessed on 24 November 2005.

Development. This includes support to strengthen community, national, and regional surveillance systems and the provision of protective gear. The United States has, to date, committed around \$13 million.

12. **Canada.** Directly affected during the SARS epidemic in 2003, the Government of Canada rapidly reacted to reduce the threat of emerging infectious diseases in Southeast Asia and China. Through the Public Health Agency of Canada, the Government has prepared the Canada-Asia Regional Emerging Infectious Diseases (CAREID) project. The project, financed by a CD 15.0 million grant, aims at strengthening regional and national capacity in emerging infectious disease surveillance and response and in epidemic preparedness, in close collaboration with WHO. Both CAREID and the ADB project have adopted a regional approach to strengthen capacity. Both projects are complementary, with the ADB project also addressing emergency and unexpected needs.

13. **The World Bank.** The World Bank has been active in providing support for avian influenza since 2004. This support includes substantial assistance to Viet Nam (including a grant from Japan) of around \$6 million and the organization of regional level activities and conferences. The World Bank has prepared an avian influenza finance facility, which was approved in January 2006 for \$500 million that will serve as the main source of funds for interested countries. Several countries have expressed interest in utilizing the resources from this facility and the World Bank is preparing several country-specific projects. The World Bank has also established a multi-donor grant trust fund to provide grant assistance. The grant trust fund has received contribution from the European Commission, the Government of Japan, and several other development partners.

**LINKAGES BETWEEN STRATEGIC ACTIONS  
FOR AVIAN INFLUENZA EPIDEMIC AND PROJECT COMPONENTS**

<b>Strategic Actions for Controlling Avian and Human Influenza</b>	<b>Project Activities</b>	<b>Project Component</b>
Containing infection at source (animal health)		
1. Improve poultry farming and marketing practices	<ul style="list-style-type: none"> <li>• Support for policies and programs for improve biosecurity in poultry farms</li> </ul>	• Component 1
2. Vaccinate poultry in endemic areas	<ul style="list-style-type: none"> <li>• Support for monitoring and implementation of poultry vaccination</li> </ul>	• Component 1
3. Enhance animal disease surveillance	<ul style="list-style-type: none"> <li>• Support for development of policies and systems for compensation mechanisms through ASEAN</li> <li>• National capacity building through FAO</li> </ul>	• Component 1
4. Rapid containment measures for avian influenza outbreaks among poultry	<ul style="list-style-type: none"> <li>• Support for emergency needs for containment</li> <li>• Support for policies and systems for animal quarantine and vaccination through FAO</li> </ul>	• Component 3  • Component 1
Preventing human influenza pandemic		
1. Reduce human exposure to H5N1	<ul style="list-style-type: none"> <li>• Risk communication</li> </ul>	• Component 2
2. Strengthen early warning system	<ul style="list-style-type: none"> <li>• Support for national capacity building through WHO</li> <li>• Regional sharing of epidemiological information</li> </ul>	• Component 1  • Component 2
3. Build capacity to cope with pandemic	<ul style="list-style-type: none"> <li>• National capacity building through WHO</li> <li>• Regional rapid response capacity</li> <li>• Regional stockpiles</li> </ul>	• Component 1  • Component 2  • Component 3
4. Rapid containment measures for human influenza outbreaks	<ul style="list-style-type: none"> <li>• Support for emergency needs for containment</li> </ul>	• Component 3
5. Accelerate development of vaccines	<ul style="list-style-type: none"> <li>• Support for development of vaccines in the region</li> </ul>	• Component 3

ASEAN = Association of Southeast Asian Nations, FAO = Food and Agriculture Organization, WHO = World Health Organization.

Source: Asian Development Bank.

## DETAILS OF REGIONAL ACTIVITIES

1. The Project aims to minimize the social and economic disruption caused by avian and human influenza outbreaks in Asia and the Pacific. The prevalence of avian and human influenza will be reduced by (i) strengthening national capacities for containing and preventing avian and human influenza outbreaks; (ii) enhancing regional cooperation and communication through support to regional networks, information exchange, and risk communication strategy; and (iii) supporting regional stockpiles of drugs and equipment. Regional activities will be implemented by regional partners that have a network of technical expertise in place, namely Association of Southeast Asian Nations (ASEAN), Food and Agriculture Organization (FAO), and World Health Organization (WHO). This appendix outlines details of activities in Component 2: Regional Cooperation. The indicative activities in this appendix are taken from WHO and FAO proposals<sup>1</sup> submitted to ADB at the time of project preparation.

### A. Subcomponent 2.1: Improved Technical Coordination

2. While individual countries prepare or update their human influenza pandemic preparedness plans, additional efforts are required to strengthen activities to address regional issues (e.g., management of borders, establishment of regional networks, etc.). Support to regional networks help to (i) control or prevent the virus or disease in already infected regions in Asia, and prepare regions at new risk of the virus or disease as it spreads beyond the region. Regional networks help support coordination of early warning, and disease surveillance and disease diagnosis at subregional levels. The Project will support WHO and FAO in developing and strengthening regional activities under this subcomponent. Subcomponent 2.1 seeks to improve coordination between affected countries and technical agencies for regular exchange of epidemiological information, laboratory specimen, and supplies.

#### a. Strengthening Laboratory Networks

3. **Regional Laboratory Networking (WHO).** The purpose of this activity is to strengthen laboratory capacity by developing and maintaining a regional laboratory network to support diagnosis and antiviral resistance monitoring. The Project will support WHO activities that lead to improved capacity building at the regional level. A list of indicative activities includes:

- (i) Development of standard operating procedures (SOPs). A regional meeting to agree on guidelines and SOPs concerning specimen collection, storage, transport, testing, and reporting of results. Participants include national laboratory heads, international influenza reference laboratories, representatives from international airlines and courier services.
- (ii) Costs to cover the international shipment of specimens, such as courier services, purchase of appropriate packing materials and containers.
- (iii) Development of training material and training courses for national laboratory professionals. Training courses to ensure uniformity in testing techniques and facilitating the establishment of a network of laboratory personnel. Participants include laboratory technicians from Asia and the Pacific region to develop common protocols. Course will be conducted in a WHO reference laboratory

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<sup>1</sup> WHO. 2005. *Avian Influenza and Human Pandemic Influenza. Immediate Funding Requirements: Proposal to the Asian Development Bank*. December; and FAO. 2005. *Avian Influenza Control and Eradication. FAO's Proposal for a Global Programme*. Draft: 2 December.

(e.g., WHO influenza collaborating centers in Australia; Hong Kong, China; and Japan).

4. **Regional Networks of National Diagnostic Laboratories and Epidemio-Surveillance Teams (FAO).** The purpose of this activity is to support regional networks of national diagnostic laboratories and epidemio-surveillance teams for the control and prevention of avian influenza. The presence of H5N1 virus in Southeast Asia continues to threaten the poultry industry and public health of humans. It puts at risk other regions that come in contact with infected birds through trade or migratory flyways. Coordination is needed at many level, including field and central/national level, among veterinary diagnostic laboratories and epidemiology teams. Regional networks provide technical support to national staff to help improve the quality of surveillance and diagnosis. One national laboratory and one epidemio-surveillance team will be chosen to lead the regional group. According to FAO, this approach has proven to be successful in other circumstances, such as the rinderpest eradication campaigns in Asia and Africa.

5. The Project will help support FAO activities aimed at

- (i) promoting and coordinating harmonized regional approaches for early detection and reporting through regional coordination centers;
- (ii) developing and implementing a proficiency testing system for national veterinary laboratories with the support of the OIE-FAO International Reference Laboratories and Collaborating Centers for Avian Influenza (OFFLU);
- (iii) establishing sustainable networks, bringing together veterinary officials and experts from the national diagnostic laboratories and epidemio-surveillance teams and build their capacity to support the above;
- (iv) developing data analysis and disease intelligence capacity in order to better understand the epidemiology of the disease and prepare risk maps to allow implementation of targeted surveillance and control programs; and
- (v) applying improved epidemiological capacity to revise strategies and improve the effectiveness of disease control activities.

6. Specific activities include development of linkages with regional organizations and national and international animal health organizations, conducting strategic and technical meetings, providing training tools and training, procuring equipment, information and data collection and management, enhancing exchange of information and sharing of lessons learned in influenza control, supporting the planning for national avian influenza control and emergency preparedness, and support for the implementation of avian influenza control programs

7. Specific activities might include workshops, institutional capacity building, training, studies, information sharing with international agencies, and recommendations to regional organizations and survey design institutes. The Regional Support Unit for East Asia will coordinate activities and ensure that an appropriate level of technical assistance is provided. Indicative areas for study include trade impacts of outbreaks in the region, structure of poultry markets, livelihoods, poverty and gender impacts of control measures adopted, direct costs of control measures adopted, assumptions underlying control strategies including perceptions of risk and veterinary services capacity, and/or potential benefits over time from control measures.

## B. Subcomponent 2.2: Regional Field Response and Containment Capacity

8. Subcomponent 2.2 seeks to (i) strengthen rapid field response and containment capacity at the regional level, and (ii) support pandemic influenza preparedness through information and communication technology (ICT).

9. **Rapid Response and Containment (WHO).** The importance of rapid response capabilities for infectious diseases and other emergencies is highlighted by the recent emerging infectious diseases and preparations for future infectious diseases. Pooling of experience, expertise and resources is essential for cost-effectiveness given the great deal of uncertainty about the future course of avian influenza at present. Global tools, such as the Global Outbreak Alert and Response Network (GOARN) and the International Health Regulations (IHR), have been developed to facilitate more effective international responses. While some recent outbreak responses for avian influenza have proceeded well, others have been relatively disjointed.

10. The Project will support WHO activities aimed at

- (i) strengthening regional and national capacities for surveillance, rapid containment of avian influenza breakouts, human influenza surveillance, case identification and management through training; and
- (ii) improving coordination between countries and technical agencies for regular exchange of epidemiological information, laboratory specimens, and supplies.

11. Specific activities might include the following:

- (i) Strengthening WHO/GOARN capacity and readiness to support countries through field teams and national responders. This requires (a) developing standard operating procedures for technical guidelines and operational protocols; (b) conducting a training course for cadre of 100 national and international outbreak response; and (c) undertaking a field exercise.
- (ii) Adapting a field information management system (FIMS) to deliver accurate and consistent information to public health staff on the epidemiology, investigation, treatment and control of outbreaks of avian influenza infection in humans.
- (iii) Developing WHO/GOARN virtual networks for epidemiology, social mobilization, clinical management and logistics for support to countries and field teams.
- (iv) Implementing field logistics, mobility and communications to support rapid outbreak response in field operations (e.g., delivery of emergency medical supplies, vaccines and antivirals).
- (v) Developing SOPs for procurement and mobilization of vaccine and supplies, drugs and medical equipment, deployment of specialist outbreak response equipment, outbreak response logistics capacity and field experience.
- (vi) Accelerating the expansion of GOARN partnership and developing regional SOPs (e.g., trigger mechanisms and capacity for rapid response).

12. WHO, in partnership with individual countries, will rely on its network of country and regional offices, and headquarters to implement a global public health response to a possible human influenza pandemic. WHO proposes to form regionally-based acute infectious disease response teams, which will be mobilized when a country requests assistance from WHO.

13. **ICT for Pandemic Influenza Preparedness (WHO).** Preparing for a pandemic of avian influenza requires that resources and capacities are organized to be able to meet the expected

health threats of people in affected or at-risk countries. ICT is a core function and service for emergency response; therefore, consideration should be given in preparing the following areas—telecommunications, facilities, equipment, systems, and staffing.

14. **Network Connectivity.** Reliable data and voice communications tools are helpful to deliver preventative programs, which rely heavily on health experts sharing information and knowledge. Different modes of communication (e.g., data, email, voice and video conferencing) will help deliver key messages in countries and the region; and thus, assist in managing and containing a possible pandemic. The WHO has been developing and implementing a network over the past 2 years to help guarantee connectivity during times of emergency. This network has connected some 82 countries worldwide, and there are plans to reach another 60 over the next 6 months. This network provides data, voice, and video.

### **C. Subcomponent 2.3: Risk Communication**

15. **Risk Communication Strategy.** Subcomponent 2.3 seeks to enhance risk communication efforts in Asia and the Pacific Region. The Project will support DMCs and complement ongoing UNICEF program aimed at ensuring timely (i) sharing of information among the ministries of health and WHO in accordance with IHR provisions and other agreed protocols to assist in implementation of appropriate interventions, and (ii) accurate dissemination of information to the general public to aid in adapting appropriate behaviors and minimize unnecessary adverse consequences on the health and economies of affected populations. Two indicative activities are included:

- (i) Translation into local dialects, reproduction and distribution of advocacy materials, guidelines and other IEC materials to ensure quality of translated materials, reduced burden on countries, and appropriateness for target groups.
- (ii) Development of generic risk communication strategy and prototype risk communication material. Prototype material for risk communication will also be developed and disseminated to individual countries for development of country-specific material according to their risk communication strategy.

## OPERATIONAL DETAILS OF SUPPORT FOR AVIAN INFLUENZA RESPONSE FACILITY

### A. The Fund

1. The Project will support in a flexible manner emerging initiatives to control both avian and human influenza. Component 3 will have a \$14.5 million to allow ADB to respond quickly to the emerging needs of developing member countries. This will be used to address emergency technical needs for preventing and controlling avian and human influenza in developing member countries. Due to the evolving nature of the epidemic and considerable uncertainties associated with the epidemic, the use of the Avian Influenza Response Facility (AIREF) has been kept flexible. AIREF will be used for the following type of activities:

- (i) Emergency needs for containing avian influenza outbreaks,
- (ii) Emergency needs for responding to human influenza outbreaks, and
- (iii) Support for regional stockpiles of essential drugs and equipment,

#### 1. Emergency Containment of Avian Influenza Outbreaks

2. The global strategy to control avian influenza and prevent a human influenza pandemic starts with the controlling the infection at source and effectively containing avian influenza outbreaks among poultry. The Food and Agriculture Organization (FAO) and the World Organization for Animal Health (OIE) recommend culling of all domestic birds in those areas where a Highly Pathogenic Avian Influenza (HPAI) virus is suspected or has been identified. Strict measures of control are also required, including quarantine of the affected area. In some circumstances, when the HPAI virus (in this case, H5N1) is entrenched and avian influenza has become endemic, poultry vaccination is the alternative.

3. Emergency containment, either through culling of poultry, quarantine, or emergency vaccination of poultry requires planning and preparedness. As soon as an avian influenza outbreak is reported, the Governments have to deploy teams to contain it. Window of opportunity for effectively containing the outbreak is usually small. However, even when plans are ready, there may be delays in undertaking containment measures due to lack of training, poor planning, and lack of financial resources to implement the plan and cover logistics and operational costs. The AIREF will cover these emergency needs, on the request of the Government, through government agencies, participating international organizations, and other partners.

#### 2. Emergency Containment of Human Influenza Outbreaks

4. Human influenza pandemic is likely to start within small clusters with limited human-to-human transmission but the spread will remain localized for sometime during which virus will adapt to humans. This corresponds to phase 4 (highly localized clusters) and phase 5 (larger clusters, still localized) of the World Health Organization's (WHO) global surveillance system. In these circumstances, WHO considers that the countries will have a window of about 20 days to stop a human influenza pandemic. It is important that countries be ready to react and that preparedness action plan be developed in details, with clear instructions for all stakeholders. However, it will be critical that cash flow impediments do not delay the rapid implementation of the plan at the onset of limited human-to-human transmission. The AIREF with rapid disbursement mechanisms will ensure that cash is immediately available to the countries that need it in emergency.

### 3. Regional Stockpiles

5. Procurement and stockpiling of essential drugs and equipment at the regional level to fight a possible human influenza pandemic is a cost-effective option. Given the uncertainties about the timing, geographical coverage, length and severity of the epidemic, all countries may not ultimately need the drugs and some may eventually need only a limited quantity. Therefore, it may not be cost-effective for each country to stockpile large quantities of drugs and equipments. A regional arrangement for the supply of essential drugs and equipment is considered a cost-effective option. Moreover, smaller countries may find it difficult to effectively negotiate with pharmaceutical companies on their own and obtain the necessary drugs, supplies and equipment for fighting the epidemic. A regional arrangement for collective bargaining with pharmaceutical companies has a better chance of succeeding.

6. WHO is planning to establish such a regional stockpile. At this stage, regional stockpile of antiviral drugs (Oseltamivir or Tamiflu®), essential antibiotics, and personal protective equipment are being considered. Stockpiling of other items may also be considered, according to recommendations of technical agencies (WHO and FAO). Logistics, supply arrangements, criteria and mechanism for deploying the stocks are being worked out to ensure safe storage and quick delivery of drug and equipment as soon as an outbreak is reported. Advance purchase contracts with suppliers will be used to ensure delivery on demand and save on transportation and storage costs. Financing needs for regional stockpiles are expected to be large. AIREF will be able to finance only part of these needs and will contribute to larger regional initiatives.

#### B. Management of AIREF

7. AIREF will receive \$9.7 million from Asian Development Fund (ADF) grants<sup>1</sup>, \$0.6 million from the Technical Assistance Special Fund, and \$4.2 million from the Japan Special Fund (JSF). The support from ADF will only be used for ADF-eligible countries and will focus on providing a range of support to these countries, including the purchase of drugs, medical supplies, and equipment. It may also support the financial needs of the animal and human health system to ensure that there is adequate support for their operation. Other countries, which are not eligible for ADF-financing, will receive support from TASF and JSF largely for technical capacity building activities, such as training, support for planning, and contracting experts. TASF and JSF may also support activities in ADF-eligible countries, in particular for activities that largely involve technical capacity building.

8. The steering committee comprising the heads of all regional departments and Strategy and Policy Department and chaired by the director general of the Regional and Sustainable Development Department will supervise the implementation and use of AIREF and provide the overall policy guidance. The steering committee will decide when a country or the region becomes eligible for use of emergency resources under AIREF. The steering committee will report to the ADB management committee. The steering committee will meet at least once every 3 months and may be called to meet more often, by the chair. Each member of the steering committee shall nominate at least one alternate to ensure that the steering committee can meet in the case of an emergency at short notice.

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<sup>1</sup> Through the Asian Development Fund's support for the prevention of HIV/AIDS and other infectious diseases.

9. ADB's avian influenza secretariat will provide the necessary advice to the steering committee when requested or needed. The avian influenza (AI) secretariat may also call upon other ADB staff's expertise according to the needs.
10. The AI secretariat will be responsible for day-to-day implementation of the Project and administrative tasks.
11. Request for funds to procure drugs, supplies or equipment for stockpiling will be transmitted to the AI secretariat for technical review and assessment. The steering committee will take the final decision. The AI secretariat will consolidate its review assessment within 2 days of receiving the request from the concerned country or regional agency. The steering committee will decide within 2 days of receiving the secretariat assessment.
12. The secretariat will also decide about allocation of funds to the affected countries up to \$100,000. For amounts more than \$100,000, the decisions will be made by the steering committee.
13. The secretariat will prepare a monthly report to inform the management about the progress of the Project and utilization of AIREF. A midterm-review of the AIREF will be undertaken in December 2006, and changes in the use of funds, eligibility criteria, and fund flow arrangements may be made, as appropriate.
14. If emerging needs require new Project activities during implementation that may have an impact on environment, resettlement, indigenous people, or other vulnerable groups, implementing partners will each inform ADB and will prepare and submit to ADB for approval appropriate impact assessment and mitigating plans, before requesting financing for that particular activity. This shall be included in new or amended grant agreements.

### **C. Fund Flow Arrangements**

15. For supporting regional stockpiles, the funds will be transferred to the identified technical agency (likely to be WHO), based on a specific request from the agency. ADB will ensure that appropriate logistics and supply arrangements are in place before the release of funds. Agreements on procurement arrangements, satisfactory to ADB will also be reached with the responsible technical agency.
16. For the emergency containment of outbreaks, the following arrangements will be followed:
  - (i) Depending on the need, resident missions may be authorized to approve and disburse a specified amount by the steering committee based on specific request for emergency assistance from the Government or technical agency.
  - (ii) The AIREF support will be primarily used for logistics and operational purpose, such as purchase of gasoline and per diem for emergency team to visit outbreak areas, etc.
  - (iii) The AIREF can also be used for the procurement of goods and supplies. The steering committee may authorize country directors to procure the needed goods and supplies, if appropriate.

- (iv) WHO and FAO will also be involved, as appropriate, and kept informed.
- (v) Detailed guidelines will be developed to ensure that the AIREF responds to only emergency needs for activities in line with national plans for containing avian and human influenza. All the Governments and technical agencies will be informed the process for seeking support from AIREF.

## GRANT RATIONALE AND PURPOSE

1. The Project will receive financing from the Asian Development Bank (ADB) for \$38 million from its Special Funds resources (ADF IX Grant Program). ADF has allocated 2% of its resources (an estimated \$140 million) to reduce the spread of HIV/AIDS and other infectious diseases for ADF-eligible countries. ADF grant financing for HIV/AIDS and other infectious diseases is available to all ADF-eligible DMCs.

### A. Rationale

2. Avian influenza is a highly communicable disease that spreads among domestic and wild bird population. Although it has spread to humans, it does not easily transmit among humans. However, if the virus mutates or recombines with a human influenza virus, it could easily spread among humans. Avian influenza is a major risk to the human and economic health to the region. If it spreads unchecked, it could seriously harm the region's poverty reduction agenda and potentially lead to the loss of several years of progress.

3. The Project will contribute to efforts to reduce the risk from avian influenza. This includes support for prevention activities and, in the case of pandemic influenza, efforts to control and minimize the spread of the virus. Both of these activities will contribute to the region's efforts to reach the Millennium Development Goals. Limiting the spread of avian influenza will protect the livelihoods of millions and halting the spread of a human influenza pandemic will directly impact on the health and welfare of everybody in the region. The Project is regional in nature and will focus in supporting regional public goods.

### B. Proposed Grant Activities

4. The Project has four components, all of which will receive finance from ADF grant. These are the following:

- (i) **Component 1: Regional Capacity Building.** This component will support regional and international organizations in the efforts to support countries respond to avian influenza.
- (ii) **Component 2: Regional Coordination.** This component will support efforts to improve the region's efforts to improve coordination in research, surveillance, and prevention activities. It will also support efforts to improve communication and the transparent sharing of information.
- (iii) **Component 3: Avian Influenza Response Facility.** This component will provide support that can be used flexibly to meet the region's needs for avian influenza prevention and control. The Project will respond to request made by developing member countries for support and to regional and international organizations for support of new initiatives.
- (iv) **Component 4: Project Management**

### C. Monitoring and Evaluation

5. Grant-supported activities will be monitored through the indicators in the Project's design and monitoring framework (Appendix 1).

## COST ESTIMATES AND FINANCING PLAN

**Table A9.1: Financing Plan by Source**  
(\$ '000)

Item	ADF Grant	TASF Grant <sup>a</sup>	JSF Grant	Total Cost
<b>A. Base Costs</b>				
<b>1. Regional Capacity Building</b>				
a. Support Containing Infection-at-Source	3,501	187	1,400	5,088
b. Support for Preventing for Potential Pandemic	5,276	281	2,110	7,668
<b>Subtotal (1)</b>	<b>8,777</b>	<b>468</b>	<b>3,511</b>	<b>12,756</b>
<b>2. Regional Coordination</b>				
a. Improved Technical Coordination	1,352	772	541	2,665
b. Rapid Field Response and Containment Capacity	3,156	768	1,262	5,186
c. Risk Communication	-	200	-	200
<b>Subtotal (2)</b>	<b>4,508</b>	<b>1,740</b>	<b>1,803</b>	<b>8,051</b>
<b>3. Avian Influenza Response Facility</b>				
<b>Subtotal (3)</b>	<b>9,700</b>	<b>600</b>	<b>4,200</b>	<b>14,500</b>
<b>4. Project Management</b>	800			800
<b>Subtotal (4)</b>	<b>800</b>			<b>800</b>
<b>Subtotal</b>	<b>23,785</b>	<b>2,808</b>	<b>9,514</b>	<b>36,107</b>
<b>B. Contingencies</b>				
1. Price Contingencies <sup>b</sup>	205	33	82	320
2. Physical Contingencies <sup>c</sup>	1,010	159	404	1,573
<b>Subtotal</b>	<b>1,215</b>	<b>192</b>	<b>486</b>	<b>1,893</b>
<b>Total</b>	<b>25,000</b>	<b>3,000</b>	<b>10,000</b>	<b>38,000</b>

ADF = Asian Development Fund, JSF = Japan Special Fund, TASF = Technical Assistance Special Fund.

<sup>a</sup> No country may receive more than \$2 million from TASF or JSF (combined) directly from this Project.

<sup>b</sup> Based on the international cost escalation factors for 2005–2009.

<sup>c</sup> Estimated at 6.0% of Project Costs of components 1,2, and 4.

Source: ADB estimates.

**Table A9.2: Financing Plan by Destination**  
(\$'000)

Item	ADF Grant <sup>a</sup>	TASF Grant <sup>b</sup>	JSF Grant	Total
Food and Agriculture Organization	4,488	231	1,771	<b>6,490</b>
World Health Organization	8,630	445	3,404	<b>12,479</b>
Association of Southeast Asian Nations	234	12	92	<b>338</b>
Asian Development Bank	11,648	2,312	4,733	<b>18,693</b>
<b>Total</b>	<b>25,000</b>	<b>3,000</b>	<b>10,000</b>	<b>38,000</b>

ADF = Asian Development Fund, JSF = Japan Special Fund, TASF = Technical Assistance Special Fund.

<sup>a</sup> ADF grants may only be allocated directly to ADF-eligible countries. International organizations will receive a blend of ADF, TASF, and JSF to allow them to operate under components 1 and 2 in both ADF-eligible and other countries.

<sup>b</sup> No country may receive more than \$2 million from TASF or JSF (combined) directly from this Project.

Source: ADB estimates.

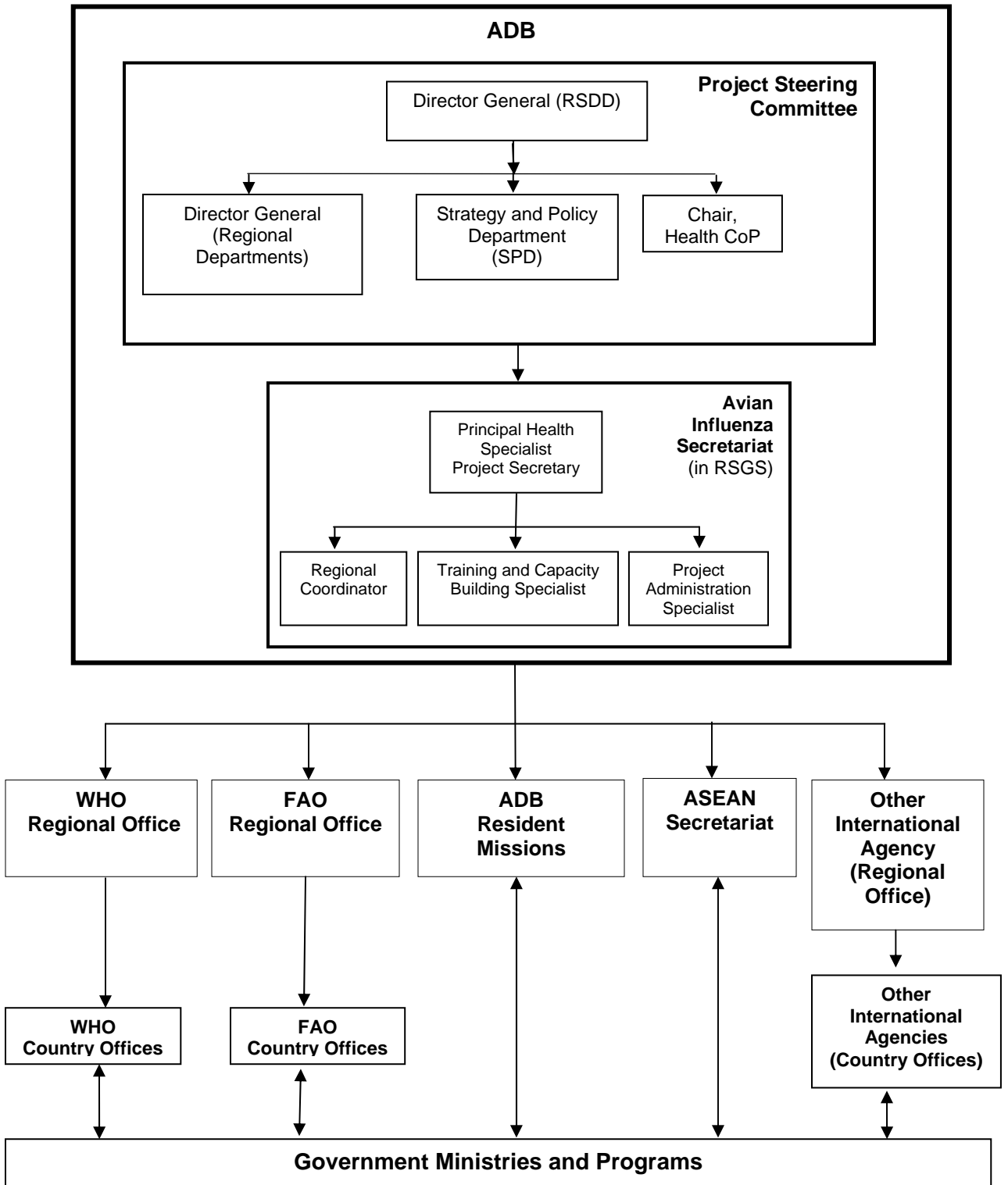
**Table A9.3: Project Cost Estimates by Implementing Agency**  
(\$ '000)

Item	ADB	ASEAN	FAO	WHO	Total
<b>A. Base Costs</b>					
<b>1. Regional Capacity Building</b>					
a. Support Containing Infection-at-Source		168	4,920		<b>5,088</b>
b. Support for Preventing for Potential Pandemic				7,668	<b>7,668</b>
<b>Subtotal (1)</b>		<b>168</b>	<b>4,920</b>	<b>7,668</b>	<b>12,756</b>
<b>2. Regional Coordination</b>					
a. Improved Technical Coordination	700	170	1,570	225	<b>2,665</b>
b. Rapid Field Response and Containment Capacity	600			4,586	<b>5,186</b>
c. Risk Communication	200			-	<b>200</b>
<b>Subtotal (2)</b>	<b>1,500</b>	<b>170</b>	<b>1,570</b>	<b>4,811</b>	<b>8,051</b>
<b>3. Avian Influenza Response Facility</b>					
<b>Subtotal (3)</b>	<b>14,500</b>				<b>14,500</b>
<b>4. Project Management</b>					
<b>Subtotal (4)</b>	<b>800</b>				<b>800</b>
<b>Subtotal</b>	<b>16,800</b>	<b>338</b>	<b>6,490</b>	<b>12,479</b>	<b>36,107</b>
<b>B. Contingencies</b>					
1. Price Contingencies	<b>320</b>				<b>320</b>
2. Physical Contingencies	<b>1,573</b>				<b>1,573</b>
<b>Subtotal</b>	<b>1,893</b>				<b>1,893</b>
<b>Total</b>	<b>18,693</b>	<b>338</b>	<b>6,490</b>	<b>12,479</b>	<b>38,000</b>

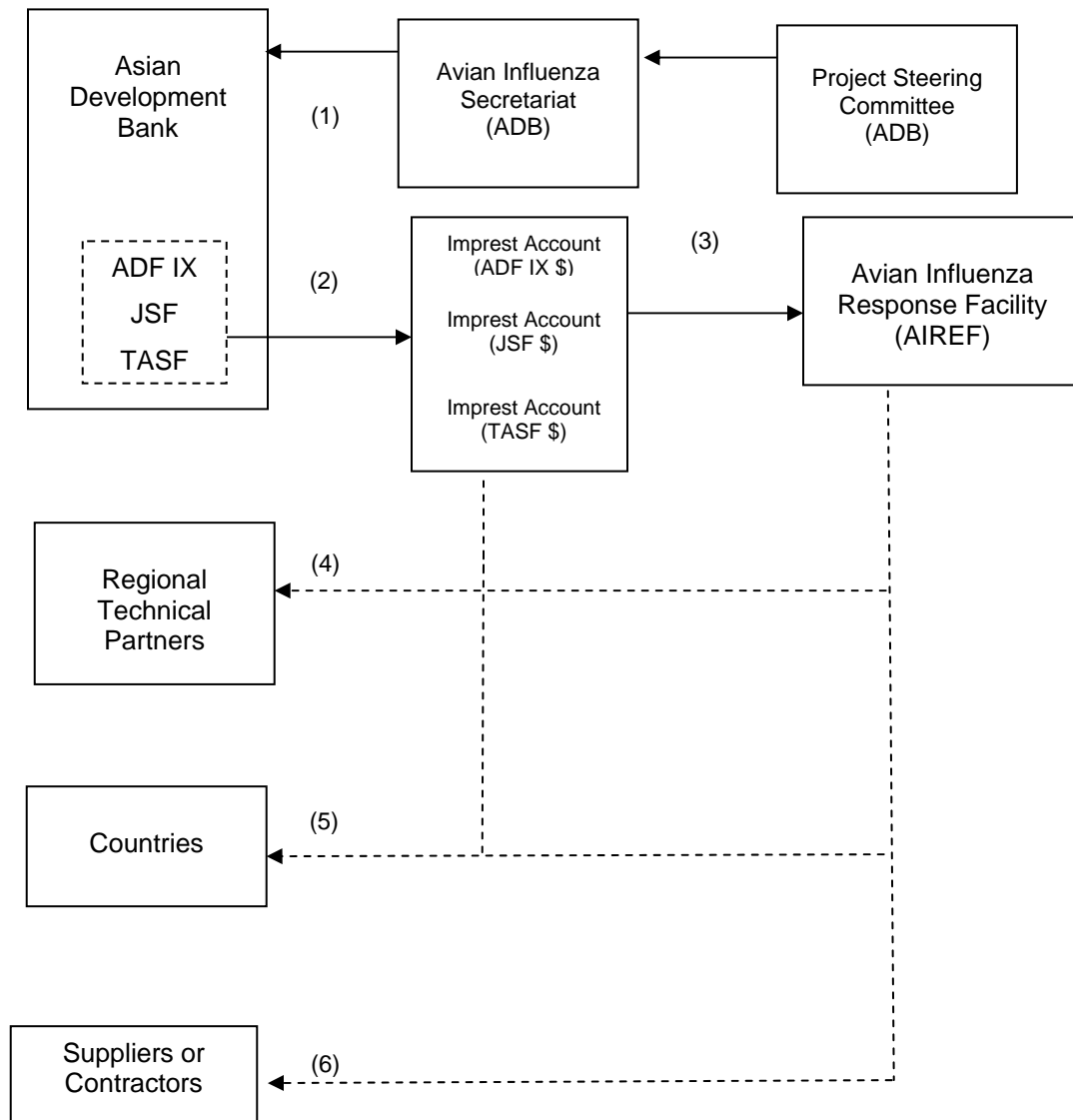
ADB = Asian Development Bank, ASEAN = Association of Southeast Asian Nations, FAO = Food and Agriculture Organization, WHO = World Health Organization.

Source: ADB estimates.

**PROJECT MANAGEMENT AND IMPLEMENTATION STRUCTURE**



### Indicative Fund Flow Diagram



ADB = Asian Development Bank, ADF IX = Asian Development Bank Fund IX, AIREF = Avian Influenza Response Facility, ASEAN = Association of Southeast Asian Nations, FAO = Food and Agriculture Organization of the United Nations, JSF = Japan Special Fund, TASF = Technical Assistance Special Fund, WHO = World Health Organization.

#### Notes:

1. Withdrawal application for approval by ADB for liquidation and replenishment of the imprest fund account.
2. ADB remits funds for replenishment to the imprest fund account (\$) maintained in the designated depository bank. Separate account established for ADF IX Grant Fund, JSF Grant Fund, and TASF Grant Fund.
3. AIREF established from imprest fund accounts for Component 3 (quick disbursement).
4. Payments in cash or kind to regional technical partners from the imprest fund account to support Components 1 and 2 – from AIREF if approved by Steering Committee.
5. Payments in cash or kind to countries, through ADB resident missions or its equivalent, from the imprest fund account to support components 1 and 2 – from AIREF if approved by Steering Committee.
6. Dollar payments to suppliers or contractors for supplies, equipment, drugs or consulting services from the AIREF.

## CONSULTING SERVICES AND OUTLINE TERMS OF REFERENCE

Activity	Description	No	Person months	Total	Organization	Outline TOR
<b>A. Consulting Services</b>						
Comp. 2.1	Field Epidemiologist	6	24	144	2- WHO/WPRO 2- WHO/SEARO 1-WHO/BKK 1- WHO/Delhi	<ul style="list-style-type: none"> <li>Surveillance activities for humans: design surveillance system, review guidelines, prepare software, and analyze results of data collected.</li> </ul>
Comp. 2	Laboratory Specialist/Coordinator	2	24	48	1-WHO/WPRO 1- WHO/SEARO	<ul style="list-style-type: none"> <li>Prepare equipment lists for upgrading laboratories for better collection and diagnosis of specimens</li> <li>Capacity building for testing and diagnosis</li> </ul>
Comp. 1 and 2	Veterinary Public Health Specialist	2	24	48	1-WHO/WPRO 1-WHO/SEARO	<ul style="list-style-type: none"> <li>Animal doctor specialized in animal vaccinations</li> <li>Review regional/country stockpile for vaccinations for animals, and identify procurement needs</li> <li>Develop guidelines for drug regulations</li> </ul>
Comp. 1 and 2	Logistics and Human Resource Coordinator	2	24	48	1-WHO/WPRO 1-WHO/SEARO	<ul style="list-style-type: none"> <li>Animal doctor specialized in animal vaccinations</li> <li>Review regional/country stockpile for vaccinations for animals, and identify procurement needs</li> <li>Develop guidelines for drug regulations</li> </ul>
Comp. 1 and 2	Technical Specialists	6	12	72	WHO/WPRO	<ul style="list-style-type: none"> <li>Specialists in Infection Control Specialist and Clinical Management</li> </ul>
Comp. 1.1	Veterinary Public Health Specialist	2	12	24	FAO	<ul style="list-style-type: none"> <li>Develop disease control strategies, assist with preparedness plans</li> <li>advise on animal health standards, disease control, veterinary public health, poultry industry regulation and rehabilitation, and socioeconomic aspects of disease control and prevention</li> </ul>
Comp. 2.2	Veterinary Laboratory Specialist	1	12	12	FAO	<ul style="list-style-type: none"> <li>Develop and implement a testing system for national veterinary laboratories</li> </ul>
Comp. 1.1	Needs assessment Specialist	1	3	3	ADB	<ul style="list-style-type: none"> <li>Validate regional and country needs assessment in coordination with countries and donors</li> <li>Support ADB Country Offices</li> </ul>
Comp. 1	Emergency Relief Specialist	2	3	6	ADB	<ul style="list-style-type: none"> <li>Develop a preparedness plan for enforcement officials, including police and the army</li> <li>Design and implement a training module for preparedness for these individuals.</li> </ul>
Comp. 1.1	Outbreak Response Specialists	2	3	6	ADB	<ul style="list-style-type: none"> <li>Capacity building for management of health impacts and economic loss by individuals in contact with infected animals (e.g., cullers).</li> <li>Track the pace of mutation or transmission of the virus among animals</li> </ul>

Activity	Description	No	Person months	Total	Organization	Outline TOR
						<ul style="list-style-type: none"> <li>• Experience in emergency response situations</li> </ul>
Comp. 1.1	Field Epidemiologist	2	24	48	FAO	<ul style="list-style-type: none"> <li>• Surveillance activities for animals: design surveillance system, review guidelines, prepare software, and analyze results of data collected</li> <li>• Develop training for animal health workers based in identification of gaps</li> </ul>
Comp. 1.1 and 2.2	Livelihood Specialist	1	3	3	FAO	<ul style="list-style-type: none"> <li>• Establish a compensation framework for mitigating loss of income and livestock</li> <li>• Review existing insurance systems to help countries integrate a compensation package into an existing system of insurance</li> <li>• Review capacity of health and animal workers in delivering compensation</li> <li>• Develop appropriate regulations and guidelines for implementing a scheme</li> </ul>
Comp. 1.1	Bio-security Specialist	1	3	3	FAO	<ul style="list-style-type: none"> <li>• Manage outbreak in animals</li> <li>• Assess existing quarantine systems and identify ways of improving bio-security on farms and in markets</li> <li>• Interpret surveillance results</li> <li>• Develop guidelines and research measures for enhanced bio-security preparedness</li> </ul>
Comp 2.2	GIS/MIS Specialist	1	3	3	FAO	<ul style="list-style-type: none"> <li>• Develop data analysis and capacity to better understand epidemiology of the disease in animals</li> <li>• Prepare risk maps</li> <li>• Collect disease information, data collection, analyze and disseminate</li> </ul>
Comp. 1.1	ICT Specialist	1	6	6	FAO	<ul style="list-style-type: none"> <li>• Disseminate technical information</li> <li>• Develop/maintain website, technical bulletins, etc.</li> </ul>
Comp 2.2	Project Manager and Network Engineer	1	6	6	WHO	<ul style="list-style-type: none"> <li>• Manages ICT resources and capacity over a period of 6 months</li> </ul>
Comp 2.2	Web Systems Engineer	1	12	12	WHO	<ul style="list-style-type: none"> <li>• Develop and maintain WHO public website.</li> </ul>
<b>Subtotal(A)</b>		<b>34</b>		<b>492</b>		
<b>B. Project Management</b>						
	Regional Coordinator	1	30	30	ADB/ AI Secretariat	<ul style="list-style-type: none"> <li>• Team Leader based in AI Secretariat (ADB)</li> <li>• Public health specialist</li> <li>• Support overall project coordination</li> <li>• Supervise consultants in AI Secretariat</li> <li>• Support ADB Staff with administration of AIEF</li> </ul>
	Project Administration Specialist	1	30	30	ADB/ AI Secretariat	<ul style="list-style-type: none"> <li>• Based in AI Secretariat</li> <li>• Support overall project implementation</li> <li>• Assist in procurement process, including preparation of necessary</li> </ul>

Activity	Description	No	Person months	Total	Organization	Outline TOR
						bidding documents <ul style="list-style-type: none"> <li>Assist in financial management, including necessary financial reports</li> <li>Organize meetings/workshops and prepare reports</li> </ul>
	Training and Capacity Building Specialist	1	6	6	ADB/ AI Secretariat	<ul style="list-style-type: none"> <li>Provide technical inputs to AI Secretariat on capacity building and training activities</li> </ul>
	Livestock Specialist	1	6	6	ADB/ AI Secretariat	<ul style="list-style-type: none"> <li>Provide technical advice on animal health policy issues.</li> </ul>
	Legal Adviser	1	3	3	ADB/ AI Secretariat	<ul style="list-style-type: none"> <li>Short-term consultancy at early stage of project</li> <li>Focus on International Health Regulations</li> <li>Review legal content of guidelines developed</li> </ul>
	Regional Coordinator	1	30	30	FAO	<ul style="list-style-type: none"> <li>Coordinate activities, disease control efforts, and technical advice</li> <li>Coordinate/harmonize regional approaches for early detection and reporting</li> </ul>
	Administration Support	1	30	30	FAO	<ul style="list-style-type: none"> <li>Project support and administration coordinator</li> </ul>
	Regional Coordinator	1	24	24	ASEAN	<ul style="list-style-type: none"> <li>Coordinator of AI-related information and activities</li> </ul>
<b>Subtotal(B)</b>		<b>8</b>		<b>159</b>		
<b>Total(A+B)</b>		<b>42</b>		<b>651</b>		

ADB = Asian Development Bank, AI = avian influenza, ASEAN = Association of South East Asian Nations, FAO = Food and Agriculture Organization, SEARO = WHO Regional Office for South-East Asia, WHO = World Health Organization, WHO/BKK = WHO Subregional Office in Bangkok, WHO/Delhi = WHO Subregional office in Delhi, WPRO = WHO Regional Office for the Western Pacific.

Source: ADB estimates.

## INDICATIVE TRAINING ACTIVITIES

Training Course	Length	Participants	Description	Location
<b>Component 1: Capacity Building at the Regional Level</b>				
<b>Component 1.1: Strengthen Regional Capacity for Avian Influenza Control</b>				
Regional Disaster Management Course	5 days	FAO and ASEAN	To build regional capacity for emergency response	Regional
Training in Animal Health	5 days	FAO and ASEAN	Technical course on animal health, with a focus on management of outbreaks	Regional
Refresher Course on Animal Health	3 days	FAO and ASEAN	Technical refresher course on animal health	Regional
Policy review of animal quarantine and vaccination systems	5 days	FAO and ASEAN	To review current policies and procedures on animal quarantine and vaccination systems	Regional
Course on animal insurance and compensation	5 days	FAO and ASEAN	Review of animal insurance and compensation schemes	Regional
<b>Component 1.2: Strengthen Regional Capacity for Pandemic Preparedness</b>				
Workshop of airport managers and quarantine officers	2 days	Airport managers and quarantine officers	Common procedures during pandemic alert and pandemic period, IHR provisions and other international agreements	Country level
Refresher training in epidemiology	3 days (x1)	WHO	Technical course in epidemiology (surveillance and case management)	Regional
Refresher course on drug management	1 days (x1)	WHO	Training on effective use of drugs and vaccines for AI	Regional
<b>Component 2: Regional Cooperation</b>				
<b>Component 2.1: Improved Technical Coordination</b>				
Regional Disaster Management Course	3 days (x1)	Team leaders	Train identified team leaders on SOPs and protocols (similar to GOARN team leader course)	Regional
Training of trainers in laboratory techniques	5 days (x2)	National laboratory technicians	Laboratory techniques for uniformity in collection/diagnosis	Regional/ country levels
Refresher course in laboratory techniques	1 days (x1)	Trainers	Review laboratory techniques (collection/diagnosis)	Country level
<b>Component 2.2: Regional Capacity for Rapid Response and Containment</b>				
Training of trainers in monitoring and evaluation techniques	5 days	M&E specialists and surveillance	Laboratory techniques (collection/diagnosis)	Regional level
Refresher course in epidemiology (surveillance)	3 days	Trainers	Review epidemiological information (surveillance and case management)	Regional level
Training in outbreak response	3 days	Health workers	National and International outbreak response	Regional/ Country levels
ITC training	2 days	Logisticians	Specialized training in field operations	Country level

ADB = Asian Development Bank, ASEAN = Association of Southeast Asian Nations, FAO = Food and Agriculture Organization, ICT = Information and Communication Technology, WHO = World Health Organization.  
Source: ADB estimates.

## SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

### A. Linkages to the Country Poverty Analysis

<b>Is the sector identified as a national priority in country poverty analysis?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Is the sector identified as a national priority in country poverty partnership agreement?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Contribution of the sector or subsector to reduce poverty in Asia and the Pacific Region:</b>			
<p>Poverty reduction in the region has been due to rapid economic growth and significant human capital investment (e.g., health and education). A human influenza pandemic in the region could slow down, and even stagnate, the rate of economic growth in the region. A pandemic could lead to poor human and animal health, a rise in deaths, and a subsequent loss of livelihoods and income. The Project will make an important contribution to minimize the probability of an outbreak of new strain of human influenza through support of preventive activities. It will also help to mitigate the harm caused by such an outbreak by supporting efforts aim to control and minimize the spread of the virus. The Project contributes to the region's ongoing efforts towards achieving the Millennium Development Goals.</p>			

### B. Poverty Analysis

#### Targeting Classification: Targeted intervention

<p>The region has seen a substantial reduction in poverty over the past two decades, built on rapid economic growth and significant investment in human capital. A pandemic in the region threatens to reverse this process. The avian influenza (AI) outbreak has already affected the livelihood of small-scale poultry farmers in the region. In the Mekong subregion alone, the outbreak is estimated to have cost about \$580 million in the poultry sector through March 2005, excluding the loss due to trade restrictions. The Food and Agriculture Organization (FAO) has estimated the total cost of the outbreak around \$10 billion. In case the virus mutates or combines with a human influenza virus, the spread of AI in humans and possible human influenza pandemic could disrupt, if not stall, the current rate of economic growth in the region. The impact on the economy could include higher unemployment rates and reduced wages, and an increase in poverty. Households, especially those engaged in the poultry sector, would suffer immediate loss of livelihoods and subsequent decline in household income. Many families might be caused to sell their productive assets or dip into their savings to pay for medical care of sick family members. The cost of healthcare associated with prevention and treatment could strain weak social protection and health systems in many countries. The loss of income from those who are unable to work and/or might subsequently die will also have a long-term impact on declining household incomes. The burden of caring for sick family members could increase for women and young girls. The poor and disadvantaged, in particular, have less access to both public and private health services, suffer from a higher burden of disease, and face an increased risk of becoming further marginalized when faced with high cost of medical care, loss of economic livelihoods, and in household income.</p>
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### C. Participation Process

<b>Is there a stakeholder analysis?</b>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
<p>A stakeholder analysis was undertaken to help identify key project stakeholders, their project-related interests and the ways in which they affect project feasibility and success. Primary stakeholders include regional technical partners, line ministries involved in health and agriculture, preventive health staff and veterinarians at different levels (e.g., national, provincial, district, lower community levels such as communes), and communities. Secondary stakeholders include country offices of the Asian Development Bank (ADB) and technical partners. An interdepartmental avian influenza (AI) task force was established to (i) assess the impact of AI under different scenarios, (ii) assess the needs of further ADB assistance among member countries, and (iii) further develop preparedness planning in the region. The Task Force consulted internally within ADB, and externally with governments, regional and country partners, and technical agencies. The establishment of a stockpile for drugs, equipment and supplies will help ensure coordination among development partners and countries in the allocation of essential technical assistance and supplies. Information on the AI is posted on the ADB website for public information and knowledge exchange.</p>		
<b>Is there a participation strategy?</b>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
<p>A participation strategy is integrated into the overall Project design. A project cell will be established within ADB—AI secretariat—to provide technical feedback and manage administration tasks. A project steering committee, chaired by the director general of the Regional and Sustainable Development Department, will comprise the directors general of all five regional operational departments and the Strategy and Policy Department. ADB will coordinate internally with a project steering committee and will liaison with regional technical partners, ADB resident mission or its equivalent, regional cooperation agencies, and other international partners. In order for the Project to be responsive to the needs of the region and country, consultations with key stakeholders in the government and in the field of human and animal health will continue during implementation. The project will strengthen coordination and surveillance activities of human and animal health experts. Support to regional technical partners will involve consultations with communities, including assistance in the development of compensation guidelines for money lost</p>		

due to poultry deaths.

In addition, coordination with other agencies and mass organizations working with vulnerable communities will help deliver risk communication strategies planned under component 2. The Project will improve information, education, and communication (IEC) materials and behavior change communication (BCC) efforts for target populations at risk or affected by AI. The importance of providing good quality of care through frontline health staff will help ensure the appropriateness of services for different at-risk or affected groups.

#### D. Gender Development

In the region, women often comprise more than half of the region's population. The burden of disease profile for disadvantaged groups, especially women, remains heavily influenced by common communicable and infectious diseases, and by morbidity and mortality associated with childbearing. Preventive health staff and laboratory technicians are often women. In the poultry sector, the division of labor between men and women differ. In Hong Kong, the influenza cases reported in 1997 indicated that women are at higher risk than men as more were market workers, poultry packers, and health workers. There was little gender differential among those who sought hospital health care in Cambodia, Thailand, and Viet Nam from 2004–2005.

The Project will invest in strengthening the capacity of regional technical experts to enhance capacity of preventive health staff and veterinarians in surveillance activities and delivering preventive and curative care. Where appropriate, courses and guidelines will disaggregate the impact of AI and human influenza on women and men. Women and men rely on the poultry sector for different activities for some this is a primary source of livelihood, and for others, poultry rearing and trade may just supplement income. Preventive education materials, i.e., IEC materials, will be prepared for use in specific communities and will take into consideration special needs related to ethnicity and gender. The Project will also support equal opportunity for training of qualified women.

Has an output been prepared?  Yes  No

#### E. Social Safeguards and other Social Risks

Item	Significant/ Not Significant/ None	Strategy to Address Issues	Plan Required
<b>Resettlement</b>	<input type="checkbox"/> Significant <input type="checkbox"/> Not significant <input checked="" type="checkbox"/> None	The Project is not likely to support any construction or rehabilitation of civil works. Any change in project in project design will require consultation with ADB to ensure that adequate social safeguards are maintained.	<input type="checkbox"/> Full <input type="checkbox"/> Short <input checked="" type="checkbox"/> None
<b>Affordability</b>	<input type="checkbox"/> Significant <input type="checkbox"/> Not significant <input checked="" type="checkbox"/> None	Issues pertaining to affordability are not expected to arise in the Project. The Project will build capacity of regional technical partners to better respond to a possible outbreak of the virus, and contain against a possible pandemic. The project will also support better monitoring and reporting activities, including effective risk communication strategies. The Project may lower the cost of essential medical services during a pandemic outbreak, thus increasing access.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Labor</b>	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	Labor is not a potential issue. The Project helps to strengthen the current capacity of regional technical partners and the preventive animal and human health systems to better respond to avian influenza. The Project supports training activities at the regional level, which will enhance the capacity of animal and human health workers. Preference will be given to qualified women and ethnic minorities.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Indigenous Peoples</b>	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	No negative impact expected. During implementation, steps will be taken to ensure that animal and human health centers take into account the needs of ethnic minorities (e.g., risk communication strategies, frontline health personnel, and training guidelines) will be developed or improved to reflect ethnic minority cultural, economic and language needs. Any change in project in project design will require consultation with ADB to ensure that adequate social safeguards are maintained.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Specific Actions
<b>Other Risks and/or Vulnerabilities</b>	<input type="checkbox"/> Significant <input type="checkbox"/> Not significant <input checked="" type="checkbox"/> None	Not applicable.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

## ECONOMIC ANALYSIS

1. The world is facing a global influenza pandemic, the first since 1968. Efforts to prevent it and to mitigate its impact are good economic investments. They are classic examples of investments that are public goods and have a high degree of externalities. The Project is part of a larger global effort to lessen the impact of avian influenza. Governments and international organizations are making a major effort to coordinate their activities and to ensure that there is adequate financing. Given the public good nature of this investment, it is difficult or impossible to attribute success in the battle against avian influenza to any single project or investment.

### A. Project Objectives

2. The overall objective of the Project is to lessen the risk of a potential outbreak of a new strain of flu by reducing the risk of mutation and by lessening the impact of an outbreak. The Project is part of a larger, world-wide campaign to fight a potential flu pandemic. Asia is at the center of an avian influenza outbreak—the disease appears to be endemic in the domestic bird population of many countries in the region and it is likely that any mutation to a human-transmitted flu will occur in Asia as well. The Project is targeted at low- and middle-income countries in Asia and the Pacific region, however it will positively benefit all countries. The Project focuses on two major activities, halting the spread of the disease in the animal population and reducing the impact of a human influenza pandemic if the disease does develop.

### B. Rationale for Investment

3. **Regional Public Good.** Investing in public health is a good example of a public good. Disease prevention and disease control benefits the entire population and it is not possible to restrict the benefits or charge the beneficiaries for the service. The market, on its own, will not provide adequate public health services. This provides strong justification for public intervention. Governments, acting individually, can effectively focus on public health in their own country. However, migratory birds (an important disease reservoir) can easily cross borders and continue to spread the disease to disease-free domestic poultry populations. Likewise, in an increasingly globalized world, it is difficult to control the entry of infected people. Without coordination and joint action, the impact of actions of individual countries will be lessened. This requires public health action at the regional level to complement and coordinate country actions.

4. The Project will support governments in developing their technical capacity to support culling of disease poultry herds. This is an example of an activity with a high externality. Farmers do benefit from culling but the cost of culling for them far outweighs their individual benefit. However, the country as a whole benefits enormously from a well implemented culling program. Without government action (by mandate and possibly with economic incentives), culling will not happen. However most governments have little technical capacity for culling and need substantial support in designing and implementing a meaningful program.

5. **Economies of Scale and Risk Management.** On average, there has been a pandemic flu outbreak every 30 years. History has shown that it is not possible to predict the timing, virulence, and impact of a flu pandemic. Some outbreaks have been mild, with low fatalities, while others have spread quickly and left a large number of dead. It is not efficient for each country to stockpile expensive equipment and drugs for a pandemic outbreak that may not occur or may be milder than predicted. Poor countries do not have the resources and have other priorities. Likewise, it is difficult for producers to predict the demand for drugs and vaccines and they may not have sufficient supply capacity. Goods can be stockpiled at the

regional level and distributed where and when they are needed, similar to an insurance scheme. Countries can also form purchasing alliances and make advance orders to ensure that suppliers have adequate production capacity in the case of an outbreak. Since it is in each country's individual interest to see the outbreak controlled in other countries, participation in this sort of scheme is well justified on economic grounds.

### C. Economic Impact of a Flu Outbreak

6. In evaluating the cost of disease, health economists have traditionally looked at several different types of costs.<sup>1</sup> First is the direct cost of the disease, which includes the cost of treatment paid by the patient and the second health care system. Second, is the indirect cost, which includes the economic loss due to morbidity and mortality. This also includes the secondary impact of the disruption in commerce due to the outbreak. Finally, is the intangible cost, consisting of the cost associated with the pain and suffering of a disease. Few studies have been to quantify all of these costs and often a partially is presented.

7. At the present, there is no indication of how severe a human pandemic would be. History provides little guidance as each pandemic outbreak has had quite different impacts. Consistent with earlier estimations, the economic analysis uses a 20% attack rate and 0.1% total fatality rate.<sup>2</sup> In human terms, this would lead to the death of around 3 million Asians and a total 600 million cases of influenza.<sup>3</sup> A common technique to quantify loss due to disease is known as disability adjusted life years (DALY), which sums the lost of life due to early mortality with the loss of good health due to temporary incapacity. Assuming the disease incapacitates people for an average of 2 weeks, a human pandemic would cost 49.6 million DALYs in lost lives and 20.8 million DALYs lost to incapacity. This can be monetized. The loss of life is equivalent to \$267.2 billion in foregone income that the victims would have earned had they not succumbed to disease. The lost in income due to sickness is around \$14.2 billion.

8. Recent experience with SARS and other diseases show that concerns about public health can have a major impact on the economy that goes beyond the direct effect of the disease on human health. The analysis examined two scenarios for the psychological impact of a potential pandemic outbreak. The first scenario assumed a relatively short reaction for two quarters, limited to Asia. The second scenario assumed a longer reaction, lasting four quarters, and worldwide impact. In both scenarios, two exogenous shocks were introduced, (i) a 3% decline in domestic consumption during the period of impact and (ii) 60% to 70% decline in the export of services during the period of impact. The shocks were modeled using the Oxford Economic Forecasting Global Model, a commercial available model that simulates different economic scenarios for planning purposes.<sup>4</sup> Under these assumptions in scenario 1, the total economic impact would be \$99.2 billion. For scenario 2, it would be \$282.7 billion. Tables A14.1 and A14.2 present the demand shocks for a number of key countries. They also include the supply shock due to the loss of workers from death and incapacity.

9. Two principle factors explain the large difference between the two estimates. First, the longer duration of the shock increases the impact cumulatively, creating a greater impact on trade and investment and leading to a greater decline in gross domestic product (GDP).

<sup>1</sup> World Health Organization. 2000. WHO Guidelines on Economic Impact. Draft Report. Geneva.

<sup>2</sup> Bloom, E., De Wit, V., and Carangral-San Jose, M.J. 2005. *Potential Economic Impact of an Avian Flu Pandemic on Asia. Policy Brief # 42*. Manila.

<sup>3</sup> These estimates include only East Asia and South Asia, excluding Japan.

<sup>4</sup> Oxford Economic Forecasting was contracted under 6194-REG (ADB. 2005. *Technical Assistance for Preparing the Regional Communicable Disease Control Project*. Manila) to perform the estimation.

Second, with more countries affected by the demand shock, the multiplier effect is substantially greater. The effect of each country cutting back on consumption and trade affects all other countries. In this way, controlling the psychological impact of an avian influenza outbreak is a public good as much as controlling the epidemiological impact of the disease.

**Table A14.1: Two Quarters of Demand Contraction, only in Asia**

Country	Estimated Reduction in Annual GDP Growth, 2006 (percentage point)		Estimated Reduction in Annual GDP Levels, 2006 (\$ billion)	
	Demand Shock <sup>a</sup>	Supply Shock <sup>b</sup>	Demand Shock	Supply Shock
<b>East Asia</b>				
People's Republic of China	1.3	0.4	21.4	6.6
Hong Kong, China	9.2	0.2	18.3	0.4
Republic of Korea	1.5	0.3	9.1	1.8
<b>South Asia</b>				
India	1.5	0.3	9.3	1.9
<b>Southeast Asia and Mekong</b>				
Indonesia	0.5	0.2	1.0	0.4
Malaysia	7.1	0.2	7.9	0.2
Philippines	1.0	0.3	0.9	0.3
Singapore	10.4	0.4	11.1	0.4
Thailand	6.3	0.3	9.8	0.5
<b>Total<sup>c</sup></b>	<b>2.3</b>	<b>0.3</b>	<b>99.2</b>	<b>14.2</b>

<sup>a</sup> Reduction in consumption, trade in services, and investment.

<sup>b</sup> Reduction in the labor due to incapacity and mortality.

<sup>c</sup> East and South Asia, excluding Japan.

Source: Bloom, De Wit, and Carangral-San Jose. 2005. *Potential Economic Impact of an Avian Flu Pandemic on Asia. Policy Brief # 42.* Manila.

**Table A14.2: Four Quarters of Demand Contraction Globally**

Country	Estimated Reduction in Annual GDP Growth, 2006 (percentage point)		Estimated Reduction in Annual GDP Levels, 2006 (\$ billion)	
	Demand Shock <sup>a</sup>	Supply Shock <sup>b</sup>	Demand Shock	Supply Shock
<b>East Asia</b>				
PRC	4.9	0.4	80.6	6.6
Hong Kong, China	17.3	0.2	34.4	0.4
Republic of Korea	6.0	0.3	36.3	1.8
<b>South Asia</b>				
India	5.4	0.3	33.6	1.9
<b>Southeast Asia and Mekong</b>				
Indonesia	2.6	0.2	5.4	0.4
Malaysia	11.1	0.2	12.4	0.2
Philippines	2.7	0.3	2.5	0.3
Singapore	22.4	0.4	23.9	0.4
Thailand	11.4	0.3	17.7	0.5
<b>Total<sup>c</sup></b>	<b>6.5</b>	<b>0.3</b>	<b>282.7</b>	<b>14.2</b>

<sup>a</sup> Reduction in consumption, trade in services, and investment.

<sup>b</sup> Reduction in the labor due to incapacity and mortality.

<sup>c</sup> East and South Asia, excluding Japan.

Source: Bloom, De Wit, and Carangral-San Jose. 2005. *Potential Economic Impact of an Avian Flu Pandemic on Asia. Policy Brief # 42.* Manila.

#### D. Project Impact

10. The goal of the Project is to prevent an H5N1 human influenza outbreak and to mitigate its consequences. At the present, the virus is largely present in bird populations and is not easily spread among humans. The Project is only one small part of larger package of assistance being organized by governments and international organizations for the same purpose. At the present, it is not possible to say what the probability is of a mutation to a human-to-human transmissible virus and how virulent such a flu virus will be.

11. The Project's potential impact can be measured in terms of its contribution in reducing the risk of an outbreak (an H5N1 human influenza pandemic). For example, suppose there is a 50% chance that the virus will not mutate (and thereby cause a pandemic) and that there will be no further economic impact and a 50% chance that the virus will mutate and cause the economic harm outlined in scenario 2. In this case, it is possible to calculate the expected value of the economic impact. There is a 50% chance that it is \$0 and 50% chance that it is \$297 billion. Thus the expected value of the economic impact is \$148.5 billion. The Project may alter the probability of the human-to-human transmission of the virus. For example, if the activities of the project lower the probability of the virus mutating by 0.1%, it will change the expected value of the economic impact to \$148.2. This implies a savings of \$300 million. The total cost of the Project is \$28 million, implying a very high rate of return.

12. This sort of analysis can be repeated for a combination of probabilities and scenarios to show under what circumstances the Project will have a positive economic impact. Using the expected value of economic impact and two scenarios ("pandemic" and "no pandemic"), the actual probability of the pandemic makes no difference in calculating the contribution of the Project. Only the Project's contributions to reducing the probability of a pandemic and the cost of a pandemic (in monetary terms) affect the calculation. If the Project contributes to reducing the probability of a pandemic by 0.04% and if the pandemic costs more than \$100 billion, the Project will generate returns of \$40 million, which are quite good given the Project's cost of \$28 million.

13. This sort of analysis is a simplification. In addition to the possibility of reducing the probability of a pandemic, the Project also aims to mitigate the impact of a pandemic should it occur. The Project will make a contribution to the region's capacity to limit the spread of a pandemic. The approval of this Project and similar projects may also contribute to reducing public perception of the danger of avian influenza, lessening the psychological impact of a pandemic outbreak.



Description	Year				Year2				Year3	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Field logistics, mobility and communications to support response teams		[Solid black bar]								
Support for ICT, IT network, website maintenance		[Solid black bar]	[Solid black bar]	[Solid black bar]	[Solid black bar]	[Solid black bar]	[Solid black bar]	[Solid black bar]	[Solid black bar]	[Solid black bar]
<b>Component 3: Regional Avian Influenza Emergency Facility</b>										
Support regional stockpiles (WHO)		[Solid black bar]	[Solid black bar]	[Solid black bar]	[Solid black bar]	[Solid black bar]	[Solid black bar]	[Solid black bar]	[Solid black bar]	[Solid black bar]
Support country resident missions for AI outbreaks		[Hatched bar]								
Support response needs to a pandemic, if necessary		[Hatched bar]								
<b>Component 4: Project Management</b>										
Operation of Avian Influenza Secretariat		[Solid black bar]								
Operation of regional partners (ASEAN, FAO, WHO)		[Solid black bar]								
Implementation support		[Solid black bar]								
Monitoring and evaluation		[Solid black bar]								

ASEAN = Secretariat of the Association of the Southeast Asian Nations, ICT = information and communication technology, IT = information technology, FAO = Food and Agriculture Organization, FIMS = financial information management system, GOARN = Global Outbreak Alert and Response Network, WHO = World Health Organization.  
Source: ADB estimates.

[Hatched box] Emergency assistance, as needed