

**Document of
The World Bank**

Report No: 34386

**PROGRAM FRAMEWORK DOCUMENT
FOR
PROPOSED LOANS/CREDITS/GRANTS
IN THE AMOUNT OF
US\$500 MILLION EQUIVALENT
FOR A**

**GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND
HUMAN PANDEMIC PREPAREDNESS AND RESPONSE**

December 5, 2005

ABBREVIATIONS AND ACRONYMS

AI	Avian Influenza	LICUS	Low Income Country Under Stress
APL	Adaptable Program Loan	MAP	Multi-country APL
ASEAN	Association of Southeast Asian Nations	M&E	Monitoring and Evaluation
CDC	US Centers for Disease Control and Prevention	MENA	Middle East and North Africa Region
CNA	Country in Non-Accrual Status	MOP	Memorandum of the President
CPAR	Country Procurement Assessment Report	NAPA	National advance purchase agreements
DIVA	Differentiation of infected from vaccinated animals	NCP	National Competitive Bidding
DPL	Development Policy Loan	NSC	National Steering Committee
EC	European Commission	OFFLU	OIE/FAO Avian Flu Network
ECA	Europe and Central Asia Region	OIE	World Organization for Animal Health
EC	European Commission	OP	Operational Policy
ECDPC	European Center for Disease Prevention and Control	PAHO	Pan-American Health Organization
ERA	Emergency Recovery Assistance	PMR	Project Management Report
ERL	Emergency Recovery Loan	POM	Project Operational Manual
EWS	Early Warning System	PP	Procurement Plan
FAO	Food and Agricultural Organization	NGO	Non-governmental organization
FMR	Financial Management Report	SAARC	South Asian Association for Regional Cooperation
GDP	Gross Domestic Product	SARS	Severe Acute Respiratory Syndrome
GF-TAD	Global Framework for Progressive Control of Trans-boundary Diseases	SOE	Statement of Expenditures
GLEWS	Global Early Warning System	TCP	Technical Cooperation Program
GPAI	Global Program for Avian Influenza and Human Pandemic Preparedness and Response	TF	Trust Fund
HPAI	Highly pathogenic avian influenza	TOT	Training of Trainers
H5N1	Influenza A virus	UN	United Nations
ICB	International Competitive Bidding	UNDP	United Nations Development Program
ILI	Influenza-like illness	WP	Work Program
IDF	Institutional Development Fund	WB	World Bank
LAC	Latin American and Caribbean Region	WHO	World Health Organization

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A. STRATEGIC CONTEXT AND RATIONALE

1. Global, regional and sector issues

(a) Introduction

1. The continuing outbreaks of highly pathogenic avian influenza (HPAI), which begun in late 2003 in several Southeast Asian countries and have occurred more recently in Europe, have been disastrous to the poultry industry in the two regions and have raised serious global public health concerns. Recent increases in the number of known cases of avian influenza (AI) transmission have raised concerns over the potential emergence of a human pandemic, which could have devastating effects on human health and livelihoods. At the same time, it is important to emphasize that there are many uncertainties about whether and when a pandemic might occur, as well as about its potential impact. Humans are highly sensitive to the Asian H5N1 strain (high mortality rates), but not very susceptible to the disease. To date, nearly 140 million domestic poultry have either died or have been destroyed and 133 people have contracted the infection of which at least 68 have died. The geographical spread of HPAI, the human dimension, and the potential enormous social and economic impact are unprecedented. Economic losses to the Asian poultry sector alone are already estimated at around \$10 billion. Despite control measures the disease continues to spread, causing further economic losses and threatening the livelihoods of hundreds of millions of poor livestock farmers, jeopardizing smallholder entrepreneurship and commercial poultry production, and seriously impeding regional and international trade, and market opportunities. The rural poor, who rely for a larger share of their income on poultry, have been particularly hard hit with income losses.

2. It is impossible to anticipate when the next influenza pandemic may occur or how severe its consequences may be. The World Health Organization (WHO) and other international organizations have recently warned that an influenza (flu) pandemic is both “inevitable” and “imminent.” Such warnings have been fueled largely by the persistence of the highly virulent strain of “bird” (avian) flu in Asia that experts fear could trigger another influenza pandemic. On average, three pandemics per century have been documented since the 16th century, occurring at intervals of 10-50 years. In the 20th century, pandemics occurred in 1918, 1957 and 1968. The pandemic of 1918 is estimated to have killed almost 50 million people in eighteen months, with peak mortality rates occurring in people aged 20-45 years. The pandemics of 1957 and 1968 were milder, but many countries nevertheless experienced major strains on health care resources. If a major pandemic were to appear again, similar to the one in 1918, even with modern advances in medicine, unparalleled levels of illness and death could result. Air travel might hasten the spread of a new virus, and decrease the time available for preparing interventions. Countries’ health care systems could be rapidly overwhelmed, economies strained, and social order disrupted. Experts predict that the global death toll could range from between 2 million to over 50 million. Studies by the US Centers for Disease Control and Prevention (CDC) reduce that range to between 2 to 7.4 million world-wide. However, narrowing down the range cannot be done with any confidence until the pandemic is under way. The level of preparedness in each country will also influence the final death toll.

3. While precise figures are difficult to estimate, the burden on health systems is likely to be considerable. In high-income countries alone, which represent 15 percent of the world’s population, experts anticipate around 280,000-650,000 deaths, 134-233 million hospital visits and 1.5-5.2 million hospital admissions.¹

¹ NHS. 2005. Explaining Pandemic Flu. A guide for the Chief Medical Officer. London.

4. There are also two “levels” of potential economic costs. The present spread of HPAI of the H5N1 strain involves transmission between animals and a limited incidence of transmission between animals and humans; as such, given the lethal nature of the virus, especially in poultry, it is currently an animal health crisis. However, the emergence of a human influenza pandemic caused by a lethal virus would have a social and economic impact many times greater. The severity of the impact of this second “level” of economic costs would depend on the severity of the pandemic; in the “worst case” scenario it would have a truly devastating effect on human population and on the world economy. Through interventions such as those proposed in this Program, the probability of a pandemic can certainly be reduced. At the same time, the proposed Program, funded in collaboration with other national and international partners, should also make it possible to minimize any pandemic’s consequences through advance preparation.

(b) Political and Socioeconomic Context

5. The recent epidemics or outbreaks of animal origin (e.g. SARS, avian influenza, Lassa virus, Ebola virus, Marburg virus, Nipah virus, West Nile virus) have demonstrated the potential and real global impact of zoonotic diseases on the health and well-being of the public, as well as the enormous humanitarian, socio-economic, and trade damage that this group of diseases can cause to both developed and developing countries. They have also underscored the important role of official veterinary and public health services in disease prevention and control, as well as the importance of strengthening the capacity of these services in compliance with the World Health Organization (WHO) and the World Organization for Animal Health (OIE)² international standards (e.g. the local, regional, and global quarantine powers under the International Health Regulations; and the international standards, guidelines and recommendations under the OIE Terrestrial Animal Health Code). The epidemics have also demonstrated that there is an urgent need for a global response to improve the local and regional preparedness and rapid response capacity to the threat from zoonotic disease.

6. Influenza is a zoonotic disease (animal to human transmission) of international importance because of its potential capacity to mutate in ways that would allow sustained human-to-human transmission. Outbreaks of influenza in humans occur annually with a severity which varies from year to year, but which is typically moderate to mild. Nonetheless, these outbreaks occur in all countries and exert an impact primarily through morbidity and reduced economic productivity because of illness. In contrast, severe influenza pandemics occur infrequently, but have been unprecedented in the number of infections and deaths caused over a short time-period. The worst such event occurred in the 20th Century, the Spanish Flu pandemic of 1918-19 (para 2), which unlike usual influenza outbreaks, had the highest mortality rate among healthy young people. Less severe pandemics occurred in 1957-58 and 1968-69, but still had high infection rates, high mortality, and major impacts on economic activity. The severity of these influenza pandemics resulted from infection with a sub-type of influenza virus to which humans had not been previously exposed and so had no immunity. Such a new sub-type of influenza (known as H5N1) is currently causing large outbreaks in birds and domestic poultry in Asia and Europe and Central Asia, creating widespread concern that the risk of a new and potentially severe human pandemic is high. Annex 11 - migratory bird flyways map illustrates the nature of the spread of the virus.

7. Addressing economic and social impacts must be an integral part of the response. A pandemic would have devastating economic and social consequences, including large-scale loss of livelihoods as well as lives. The potential economic costs of avian influenza are apparent in countries such as Vietnam, where impacts are already evident on the poultry sector, associated input and distribution channels, and the rural poor who rely on poultry for a larger share of their income. Even if a pandemic

² For definition, mandate and complementarities of OIE and FAO, please see Annex 6b

does not occur, there could be important socio-economic effects resulting from the response to the perceived risks. Countries will confront choices in balancing preparation versus action since both imply economic costs. At least three types of economic costs or impacts should be considered under a human pandemic scenario: (i) effects of sickness and mortality on potential output; (ii) private preventive responses to an epidemic; and (iii) public sector responses.

(c) Key Issues and way forward

8. A coordinated global response should involve three types of strategic activities: (i) preventing the spread of the disease in animals, thus lowering the animal origin virus load in the environment, (ii) preventing and/or mitigating the effects of an outbreak in humans, and (iii) in the event of a pandemic, helping affected populations cope with its effects. There is a need to formulate a global response based on a common vision for undertaking these three sets of activities. Such a vision should entail immediate measures while ensuring that these measures fit within a coherent longer-term strategy with respect to both animal and human health considerations. Key issues that have been identified include:

- ***Avian influenza control is multi-sectoral in nature.*** It involves many players, including those in the areas of health, agriculture, economics, finance, and planning among others. At the country level, in particular, an integrated, multi-sectoral response is needed based on clear shared objectives. In some countries, the role of the military should be considered, as the armed forces generally are the main public coordinating body in cases of national emergencies, disasters and threats considered of national interest. Responses must address both the animal health and human health dimensions and also appropriate social measures (quarantines, transport restrictions, mass communication strategies).
- ***The risk of a human pandemic is real.*** The H5N1 strain currently affecting several Asian countries has proven highly fatal to humans. The risk that a pandemic virus will emerge depends on opportunities for human exposure and infections, which will persist as long as the H5N1 virus continues to circulate in animals. With the present situation, the potential of the HPA1 virus to become transmissible among humans should be of serious concern to the global community. If the virus adapts itself to human-to-human transmission, lives may be threatened on a large scale.
- ***The livelihoods of the rural poor are particularly threatened.*** The Asian region is home to two-thirds of the world's poor, with the great majority of these being represented by women and children. Some 80% of the poor live in rural areas and the vast majority of these people are still dependent on agriculture for their livelihoods. For poor households depending for their livelihoods on poultry, HPAI has meant the loss of income and food security.
- ***Avian Influenza virus is constantly evolving with unpredictable results.*** The HPAI viruses are of particular concern because they are very labile and undergo constant genetic change with unpredictable results. While this is a clear threat to global poultry industry and public health, the constant and rapid evolution of the virus necessitates a global approach to controlling the disease.
- ***Conditions have caused HPAI to spread rapidly.*** The conditions for the emergence and local spread of HPAI have been exacerbated by the intensification and concentration of livestock production in areas of high-density human populations. The danger of international spread of HPAI has increased by the dynamics of regional and international trade and the movement of people. A global approach to avian influenza, therefore, will have relevance to strategic control of other livestock diseases, including zoonoses.

- ***Individual countries are central to any coordinated response.*** Country strategies developed and owned by the governments facing the threat of avian influenza should be the foundation of a global response. However, capacities to plan and execute appropriate responses vary considerably among countries. The very poor countries with low capacity to respond are at risk and will need potentially different preparedness strategies than the middle and high income countries that have basic minimum capacity to deal with disasters and emergencies. Capacity constraints and the highly decentralized nature of some affected countries makes the task of implementing actions and plans agreed at higher levels of government even more challenging.
- ***The geographic coverage of a response should be determined by both immediate and anticipated needs.*** Asia is today the most affected region, but the disease is currently spreading to other areas of the world, including Europe and Central Asia, at an alarming rate and recent scientific evidence indicates that wild birds play a role in the spread of the virus from one country or region to another. The response should, therefore, combine control measures in countries where the virus has been already detected, with prevention measures in countries at risks (countries neighboring infected countries and/or in migratory bird fly way paths). A minimum level of preparedness is essential in all countries.
- ***An appropriate balance between short and long-term actions needs to be taken.*** Immediate action is needed in a number of areas. The immediate objective in the short-term is to reduce the risk to humans by preventing further spread of HPAI in those countries that are currently infected. The long-term strategy is to minimize the global threat and risk of HPAI in humans and domestic poultry, through progressive control and eradication of HPAI. Work on the short- and long-term fronts should proceed in parallel; efforts should be made to ensure that short-term responses are consistent with and contribute to proposed longer-term interventions.
- ***Global and regional aspects of the response need to be addressed and coordinated.*** Actions to secure borders and control international trade/travel in the event of a pandemic, as well as measures to limit the effects of disease transmission by migratory birds, are trans-boundary issues requiring regional and/or international coordination. Global and regional efforts should build on existing mechanisms such as the joint OIE/World Bank initiative for the Prevention and Control of Global Emerging and Re-emerging Diseases of Animal Origin, and the joint Global Framework for Progressive Control of Transboundary Animal Diseases (GF-TADs), a joint FAO/OIE initiative and regional organizations such as the Association of Southeast Asian Nations (ASEAN) and South Asian Association for Regional Cooperation (SAARC).
- ***An important challenge at the global level concerns market failures.*** Supply responses are likely to be inadequate, at least in the short-term, with respect to the production and stockpiling of anti-virals and the development/production of vaccines for use by developing countries. Global efforts to address such market failures will likely require public-private partnerships and should be considered an important longer-term objective. There are also technical questions about the efficacy of different strategies for anti-viral use and vaccination, as well as questions of how quickly and how best production could be ramped up in the short-term.
- ***Evaluation of key interventions and actions will be critical for moving forward.*** This will require building such evaluations into program designs. Doing so could also help address the incentive issue for countries by generating evidence on what actions are, or are not, effective. The example of South Korea as a “model” country is instructive in this respect.

- ***Developing strong contingency plans to reduce the impact of a pandemic make sense.*** Being prepared is not only prudent but necessary in today's globalized environment. The global expansion of tourism and the vast increase in air travel can accelerate the spread of infectious diseases, allowing little time to prepare. The rapid international spread of Severe Acute Respiratory Syndrome (SARS) in 2003, for example, provided some valuable lessons in emergency public health protection. This, together with an outbreak of avian flu (A/H5N1) in Hong Kong in 1997, highlighted the need for countries to develop or improve existing contingency plans. (South Korea, which is also the host country of the International Vaccine Institute {IVI}, is among the countries with the most effective contingency plans.

(d) Global dimension

9. **The FAO/OIE's Global Strategy³.** The long-term objective of the strategy prepared by FAO and OIE in collaboration with WHO is to minimize the global threat and risk of HPAI in humans and domestic poultry, through progressive control of HPAI, particularly that caused by H5N1 virus, from terrestrial domestic poultry in Asia. There is consensus among these agencies on the need to both contain at source and prepare for a human pandemic. Achieving this goal will diminish the global threat of a human pandemic, stabilize poultry production, support a robust regional and international trade in poultry and poultry products, increase human and food safety, and improve the livelihoods of the rural poor. The global strategy will be implemented over three time frames: immediate to short (1-3 years), short to medium (4-6 years) and medium to long-term (7-10 years). During this period the spread of HPAI, mainly of the H5N1 strain, will have been progressively controlled in domestic poultry of all infected countries, and prevented from affecting those countries not currently infected, but at high risk. The strategy originally prepared to control HPAI in Asia is being revised by FAO and OIE to take into account the current spread on the disease outside Asia. The strategy will be complemented by more detailed country specific HPAI control plans. FAO/OIE have also issued specific recommendations for avian influenza and OIE has recently issued recommendations for each region, in addition to its standards and guidelines provided for the prevention and control of HPAI in animals (see Annex 2a for more details).

10. **The World Health Organization (WHO)⁴** has defined phases in the evolution of an influenza pandemic which allow a step-wise escalating approach to preparedness planning and response leading up to declaration of the onset of a pandemic. Once a pandemic has been declared, country action will depend on whether cases have been identified in the country, and how extensively it has spread. The WHO's phases, which were revised in April 2005, describe the progression of an influenza pandemic from the first emergence of a novel influenza virus, to wide international spread. This is a global classification based on the overall international situation and is now used internationally for planning purposes. The phases are: (i) inter-pandemic period, where no new influenza virus subtypes have been detected in humans, and an influenza virus subtype that has caused human infection may be present in animals posing a risk of human diseases; (ii) pandemic alert period, where human infection with a new sub-type, but no new human-to-human spread, or at most rare instances of spread to a close contact, highly localized spread suggesting that the virus is not well adapted to humans, and large cluster but human-to-human spread still localized, suggesting that the virus is becoming increasingly better adapted to humans, but not yet fully transmissible; and (iii) pandemic period, increased and sustained transmission in the general population occur. Transition between phases may be rapid and the distinction blurred. A move to a higher alert level in a country may be triggered, after assessing the

³ FAO/OIE. May 2005. A Global Strategy for the Progressive Control of Highly Pathogenic Avian Influenza.

⁴ WHO. August 2005. Global Influenza Preparedness Plan. Geneva.

risk, if influenza due to a pandemic strain is affecting another country geographically close to the country, although technically it is still “outside” the country (for more details see Annex 2b).

11. As part of an overall financing framework for Avian Influenza control (see paras 32-33) and Annex 3), **the World Bank** proposes a multi country facility (a horizontal APL) designed along the lines of a multi-country Adaptable Program Loan (MAP). In parallel, the Bank is discussing with the EC, WHO, FAO/OIE and bilaterals and multi-laterals organizations options for grant financing. One option would be the establishment of a multi-donor trust fund (TF) that would primarily support country level activities, while having a smaller and complementary role at the regional and global level.

12. The **International Finance Corporation (IFC)** has been pro-active in assisting its clients to review and enhance their bio-security protocols and develop contingency plans to respond to an HPAI event. Prior to the recent outbreaks, IFC had assisted its European and Middle-East clients identify consultants to assist in the enhancement of bio-security and contingency plans, and have collected and disseminated lessons learned from Asian and European experiences. In addition, IFC has required each poultry client to provide an action plan of how they would plan to address an HPAI event. IFC missions are visiting all client companies to review their reported contingency plans, audit their protocols and make an individual risk assessment. Where any client’s bio-security protocols and contingency plans are deemed inadequate, agreement will be sought to develop an action plan to enhance the present arrangements. In addition, IFC it is planning to assist clients with existing resources (EU, FAO, AUSVETPLAN) that can be used as bases for developing in-house protocols, and to highlight that the adverse publicity being given to the poultry industry and its products can result in major shifts in demand if HPAI is found in-country, and that preparation is required to address planning, market, public relations and financial issues. (For more details on IFC’s response, please refer to Annex 2c).

(e) Regional implications

13. Episodes of emerging zoonoses are increasing around the world and the confluence of people, animals and animal products today is unprecedented. Concurrently, a wide array of complex factors are also converging that will not only ensure the continuous emergence of zoonoses, but are also likely to drive the further increase and expansion of these diseases. The recent epidemics or epizootics demonstrate the global importance of emerging diseases in terms of health and well-being of the public. In addition, emerging zoonoses of public health concern are also a sobering reminder of the tremendous socio-economic and trade damage that this group of diseases can cause to both developed and developing countries.

Africa

14. There is a potential risk that AI sub-type H5N1 might be carried along migration routes of wild birds to Africa. Ethiopia, along with other east African Rift Valley nations like Kenya, Tanzania and Uganda, are considered at high risk for the spread of the virus as millions of migratory birds flock there during the European winter. Bird carriers of the avian influenza virus could thus reach North and East Africa during any of the upcoming migratory seasons, starting with late 2005, early 2006. Though the densities of human and poultry populations are generally lower in Africa than in South-East Asia, the poultry production systems have many similarities, which would create multiple opportunities for human exposure. There is mostly domestic farming with small amounts of chickens, which often mingle freely with wild birds. With few exceptions, notably in large commercial farms, surveillance for avian disease is non-existent. Nutrition of the birds is poor and high mortality is common, increasing the likelihood that outbreaks of H5N1 will be missed.

15. The region is especially vulnerable in terms of its extremely weak capacity in public animal health services and human health surveillance infrastructure, including health system infrastructure and the capacity and availability of human resources for health. Some countries are initiating steps to prepare for a possible outbreak of the virus. In Kenya and Mozambique World Bank operations are under preparation. In Kenya a joint assessment with the WHO, FAO and other donors will be performed in December 2005. Planned activities include the strengthening of the rapid detection of poultry disease outbreaks and the emergency introduction of control measures, including preparation for the destruction of all infected or exposed poultry, stock, and the proper disposal of carcasses. In Mozambique the government established a technical coordination working group with the participation of the Ministry of Health and Ministry of Agriculture and key international partners. The focus is on increasing public awareness, prevention of animal to human transmission including strengthening of surveillance and preparation of a national HPAI contingency plan.

16. In addition, FAO is helping prepare emergency assistance plans for early detection and prevention of HPAI in most countries of West Africa and East Africa. At a regional level institutions and experiences like the ALive platform, IBAR (the Livestock Bureau of the African Union), the OIE regional offices, FAO and the Pan African Program for the Control of Epizootics play an important role in the preparation of an avian influenza outbreak in Africa.

East Asia

17. East Asia is the region most affected by HPAI to date, with Cambodia, China, Indonesia, Thailand, and Vietnam all reporting human infections. The disease is endemic in poultry populations. The number of countries affected by HPAI is increasing and now includes Cambodia, China, Indonesia, Japan, Lao PDR, Mongolia, South Korea, Thailand, and Vietnam. The economic consequences have already been serious for the poultry industry in these countries (with about 20% of poultry stocks lost in Thailand and Vietnam, an industry which represents 1% of GDP). In Vietnam, the value of birds culled so far represents 0.3% of GDP. In China, the Ministry of Agriculture reported on October 26, 2005 an outbreak of AI where authorities immediately culled 370,000 birds. Poor households are particularly affected since poultry is a significant source of income. There is also a risk that tourism will be affected by concerns about human infections. In Vietnam for example, a modest decline of 5 percent in tourism would translate into a 0.4 percent decline in GDP.

18. East Asia is the only region with human cases of HPAI to date. WHO has confirmed as of December 2, 2005 a total of 133 human cases of bird flu infections that as of end-November 2005 had resulted in 68 deaths in Southeast Asia since December 2003. Of the fatalities, 41 are from Vietnam, 13 from Thailand, 8 from Indonesia, 4 from Cambodia, and 2 from China. In China, the state media reported on November 22, 2005 new poultry cases of the deadly H5N1 form of the virus in both the northwest and southwest of the country. The possibility of bird-to-human transmission crossing over to sustained human-to-human transmission is real in all affected countries. Countries have begun to respond by preparing human epidemic plans in addition to poultry control plans and to assess and gather resources. The issue has also received attention in regional fora, such as ASEAN, and international technical agencies and donors have begun providing assistance.

Europe and Central Asia

19. Cases of avian flu have already occurred in several countries, including Romania (which reported on November 14, 2005 discovering 4 new cases of H5 type in domestic birds in a village in the Danube delta), Turkey, Ukraine, and Croatia. These events have prompted a ban by the EU on the import of poultry from these countries. The Russian outbreak of HPAI H5N1 has affected six administrative regions, beginning in the Ural Mountains and moving West to within 200 km of

Moscow. On November 22, Russia reported new outbreaks of bird flu where 250 wild swans died from an H5-type flu in the Volga River delta. Five villages in Ukraine in the Crimea Peninsula have been placed under quarantine and all poultry in the affected regions will be slaughtered. Health experts investigating the death of 1,600 domestic birds in the areas confirmed the presence of a strain of the H5 virus. With AI reported in one country in the Balkan Peninsula (Croatia), other countries in the peninsula and the Caucasus are at risk due to their proximity to two main flyways, the East Africa-West Asia Flyway, which crosses Turkey, and the Central Asia Flyway. Both flyways cross areas in North-eastern Europe, where avian influenza in wild and domestic fowl has been diagnosed.

20. In August 2005, outbreaks in poultry of HPAI H5N1 were reported in four regions of northern and central Kazakhstan. The epidemic has severely affected poultry production in the country, with the death or culling to date of about 14,900 birds, according to government and media sources. Central Asian countries have become exposed to HPAI by migratory birds, spreading the disease from infected neighboring countries. From a geographical point of view, Central Asian countries represent a vast area in which introduction of AI is likely to occur, and where the sensitivity of the system for early detection of HPAI is low. All EU countries have plans to fight a possible avian flu pandemic. All countries in ECA have similar plans with the exception of Macedonia, Moldova and Turkmenistan. In close coordination with WHO, FAO and bilateral agencies the Bank is actively engaging with affected countries. A multi-sector/multi-agency team (World Bank, FAO and WHO) are at present working with the Turkey authorities to assess the situation and help design a country-specific project. Similar efforts are underway in the Kyrgyz Republic where a multi-sector/multi-agency team (World Bank, FAO, WHO, CDC) will visit the country in early December.

Latin America

21. There have been no reported cases of the H5N1 Asian sub-strain reported in the bird population of the region and until now the region has been largely isolated in terms of migratory routes from areas of the globe where the disease has been identified. If the disease were to spread through wildfowl migration, it would most likely come from an infection in North America and then spread via prevailing North-South routes. This migration is now well underway for this fall season, and if the virus is not currently present in the North, it will not probably spread in this manner before fall 2006. There are also the possibilities of the virus being carried through people or live fowl from infected areas, although these seem to be remote. If there is a transmission of the virus to the region, the exact economic cost could not be predicted now and would depend heavily on how effective surveillance and early detection are. Poultry has been the fastest-growing segment of the meat industry in the region over the past twenty years. LAC has over 2.5 billion chickens, nearly 1 billion more than 10 years ago. Brazil has become the world's largest exporter; in fact, Brazil chicken exports rose 26% last year alone, accounting for 43% of total international trade, in large part fueled by dramatic increases in exports to Asia because of the outbreak of avian flu there. Poultry also constitutes a major component in the diet of the region. Unfortunately, the development of animal health surveillance systems has lagged well behind this expansion of industrial poultry farming. Along with compensation for culling programs, surveillance and detection systems would require immediate and large-scale assistance in the case of an outbreak of H5N1.

22. Most LAC countries have begun at least some initial preparation for a possible outbreak of avian or human flu, and the first major hemispheric conference on avian flu is scheduled for November 30-December 2 in Brasilia. Poultry and animal health commissions from around the region have been meeting and regional authorities have taken some preventive measures, including improved surveillance of poultry farms and monitoring of migratory birds. The Bank is active in strengthening human health systems in most countries in the region, including development of public health surveillance in several countries. In animal health, however, the Bank currently supports only two projects (Uruguay and

Argentina). More positively, the Bank's dialogue and lending could be adjusted to respond to the AI threat or provide a platform for possible additional assistance. The region also benefits from support from the Pan-American Health Organization (PAHO), which has probably the strongest field presence of any of the regional health organizations. PAHO is actively supporting national AI preparedness plans, surveillance, vaccine availability, and plans for health care workers, communication strategies, and other needed measures.

Middle East and North Africa Region

23. On November 11, 2005, Kuwait authorities confirmed H5N1 antibodies in a migratory wild flamingo in Kuwait. If independently confirmed, this case would be the first evidence of HPAI in the Middle East and North Africa Region after suspected cases in Iran and Iraq were not confirmed. However, the MENA Region is located in the center of major Asian-African flyways of migratory birds. After outbreaks of HPAI in Romania, Turkey, Ukraine and Croatia, the risk of HPAI spreading to MENA has markedly increased. Countries in the Region are aware of this risk and have started to take some preventive measures such as import bans of live birds and poultry products, the suspension of the wild bird hunting season, the establishment of migratory bird observation posts and testing, and the stockpiling of antiviral drugs. Saudi Arabia has started to take special precautions ahead of the annual pilgrimage to Mecca in January 2006 when about two million travelers are expected to visit the country, many from Asian nations where H5N1 outbreaks have been reported. Financial and technical assessments, as well as the status and quality of emergency response plans, show large country-specific differences. Surveillance and analytical capacities, as well as the regulatory framework for financial compensation to farmers with infected poultry, are expected to need improvement in most countries of the Region. In addition, several countries are affected by military conflict or otherwise difficult security situations, which will affect the countries' effectiveness to detect and respond to an outbreak of HPAI. In close coordination with FAO, OIE and WHO, the Bank is working on rapid assessments of country-level HPAI preparedness to be conducted in the next two months.

South Asia

24. The South Asia Region faces the potential risk of being affected by HPAI H5N1 during the upcoming migratory season. This risk is increased because South Asia is in the path of the Central Asia flyway (including Kazakstan which has had an outbreak) and West Asia/East Africa flyway for migratory birds. Less virulent strains of avian flu (H9, H7 and H3) have already been found in Pakistan. Outbreaks of the less virulent strains have occurred in the region in recent years, but have been contained. The vulnerability of the South Asia region is its high population density, and the implication of this if the disease moves from an animal issue to a human pandemic.

25. Countries in the South Asia region, with the exception of India, have very limited capacities for human and animal health disease surveillance, control and testing. In addition, mechanisms for information and coordination across relevant ministries and agencies (Health, Livestock, etc) are weak. In most countries, poultry and other fowl (e.g. ducks, geese) are an important source of livelihood for many small, poor farmers, who will suffer significant economic losses either due to death of animals or as a result of their mandatory slaughter. Governments, except perhaps India, have yet to formulate human and animal health preparedness and disease control plans (including compensatory policies). Therefore, there is a significant risk that an outbreak of the disease among animals or humans will not be detected or reported in a timely way.

2. Rationale for Bank involvement

26. A key justification for Bank's involvement is the Global Public Goods aspect of the HPAI – one of the many emerging and re-emerging zoonoses. There is also a national Public Goods perspective for countries to strengthen their veterinary services, disease surveillance, and human health system as proposed in this operation. HPAI control programs require a multi-disciplinary approach to integrate technical, social, economic, political, policy, and regulatory issues in addressing a complex problem. While the Bank's main comparative advantage vis-à-vis its partner agencies WHO, FAO, and OIE is the Bank's ability to provide significant funds to countries at risk, the Bank is also well placed to build upon its knowledge base on multi-disciplinary approaches needed in the proposed operation and apply the evidence and lessons learned in the various regions during emergency preparedness responses, multi-disciplinary approaches and international best practice. The Bank can be helpful in bringing together the relevant ministries, government agencies, and the donor community, and in helping ensure high level political coordination. The Bank is seeking new ways of partnering with the other donors and the affected countries to address their preparedness constraints. The Bank has been working with FAO, WHO, OIE, EC, bilateral agencies and other partners in country and at the international level, as well with the affected countries in Asia and Central Asia to assist with institutional assessments and preparedness plans, and to provide resources for the development of an HPAI control strategy in the poultry sector in Vietnam. The Bank can assist governments and the global technical agencies in leveraging additional resources from other bilateral and international agencies. In addition to its financial role, the technical assistance provided by the Bank has been important in similar global or regional emergency situations such as SARS, post-disaster reconstruction, and HIV/AIDS. At the international level, the Bank's national and regional support would be closely linked with the activities of global partners in this field, i.e. FAO, OIE, WHO; the proposed program is fully consistent with, and draws heavily on, the global strategies developed by FAO and WHO. The Bank has a strong comparative advantage in providing integrator skills and multi-sectoral perspectives, and in addressing the institutional dimensions of the response to such emergencies and can also bring extensive experience and skills in understanding and addressing the social and economic impact.

3. Higher level objectives to which the program contributes

27. The overall objective of this Program is to minimize the threat posed to humans by HPAI infection and other zoonoses to prepare for, control, and respond to influenza pandemics and other infectious disease emergencies in humans. Achieving these goals will diminish the global burden of disease and loss of productivity, and will enhance economic and social prospects at the global, regional and country levels.

B. PROGRAM DESCRIPTION

1. Overall Coordination

28. **Ongoing Dialogue.** OIE, FAO and WHO are the lead technical agencies in the containment of AI, and in the prevention and containment of a human pandemic. FAO and OIE have prepared a common strategic plan for the control of the AI virus in animals. WHO has prepared a draft strategic plan laying out activities for individual countries, the international community, and WHO to prepare for a pandemic and its potential impact. The technical agencies have been coalescing around a shared multi-sectoral strategy of treating the disease at source, preventing/mitigating the effects of an outbreak in humans, and averting a human pandemic at the country, global and regional levels. This emerging consensus was deepened at the US-hosted Partners' Meeting and at the Canadian health ministers' meeting in October 2005. A series of other meetings have taken place or are planned through early next year to build support for the strategy and review the related financing needs: (i) a regional meeting

hosted by Australia on October 29-31, 2005; (ii) a OIE/FAO/WHO/World Bank-sponsored meeting in Geneva, November 7-9, 2005; (iii) and an European Commission (EC)-sponsored pledging conference in January 2006 in China.

29. The EC has established a task force to address AI. Directorates within the EC have been given responsibilities for coordination with EU countries and with other regions. EC is considering the allocation of funds into a multi-donor TF to be coordinated by the Bank. The UN Secretary-General appointed in September 2005 an overall Coordinator of the UN's efforts on AI. Although some countries will choose to support programs with investments separate from the proposed multi-donor trust fund, all support to countries will be based on adapting the OIE/FAO/WHO technical protocols to country circumstance.

30. Building on the East Asia Region's collaboration with the Asian Development Bank, The Bank has also begun a dialogue with the other multilateral development banks on AI, including meeting with them regularly, and sharing with them the guidelines we have used to conduct country assessments. It will be important to put in place an overall financing framework that ensures effective coordination among donors around agreed country, regional, and global strategies, even as they use different instruments of support.

31. The Bank has discussed the broad outline of the Program with international stakeholders, including during the Geneva meeting receiving broad and enthusiastic endorsement for making this financing mechanism available to eligible countries. The Bank has the comparative advantage of working across sectors, the ability to help governments develop their own response frameworks, and to channel significant resources through government systems. In addition it has the convening power to bring together various donors and partners. The Bank can also play an important role supporting and mobilizing technical assistance and knowledge sharing activities at the regional and global levels. The technical content of an Avian Influenza response will be led by the key technical agencies -- WHO for public health and FAO/OIE for animal health.

32. **Coordination Framework.** The Geneva meeting, referred to in para 28 above, agreed on the need to finalize a coordination framework that builds on existing mechanisms at the country level, and on international best practices at the global level. The framework needs to ensure that it: (i) avoids duplication of efforts; optimizes the use of global assets and resources; (ii) facilitates knowledge transfer and active learning as the situation evolves; and (iii) provides a forum for building strong, effective working relationships before a full scale crisis hits.

33. This approach builds on three types of coordination that must come together. At the country level, coordination should build on existing arrangements, but also ensure that it supports close collaboration between the Human and Animal Health perspectives (for details see Section C.1 – Partnership arrangements). Arrangements are also needed at both regional and global levels to achieve global alignment and harmonization at a working level among the interested parties; facilitate information exchange among these parties; set global, technical standards; and, prioritize activities against the broader objectives of the overall partnership. Finally, there is also a need for a high level of coordination to address key issues around aligning global strategies, tracking progress against key indicators, identifying gaps and blocks, and providing the impetus to drive forward ways to overcome such blocks. One of the proposals being discussed is a high level coordination mechanism described as an International Consortium on Avian & Pandemic Influenza. That consortium might be chaired by the Senior UN System Coordinator, who would look for support to all parts of the UN system, including the World Bank Group. At the Geneva meeting, both the Senior UN System Coordinator and the US Government representative expressed interest in finding ways to bring this approach together with the

US-led International Partnership on Avian and Pandemic Influenza (IPAPI), in order to maximize the synergy between them.

2. Lending Instrument

34. **Overarching strategic direction.** The proposed GPAI framework would have global reach. The Bank's investment support would be provided using the horizontal adaptable program loan instrument (APL), similar to the instrument already used to support the HIV/AIDS efforts in Africa and the Caribbean. The proposed horizontal APL would provide an overall framework for coordinated action and co-financing with other multilateral organizations and donor agencies, by establishing a US\$500 million facility to provide individual countries with financial and technical assistance during the period FY06-FY12.

35. The Global Program would be based on integrated national plans prepared by countries, including short and medium-term contingency and institutional development plans, based on the general direction of global strategies prepared by the technical international agencies. The Program would support individual countries to adapt, according to local realities, the provisions of global strategic preparedness and response plans. These plans, as noted below, outline priorities grouped under components, which either would assist those countries where the disease is endemic among poultry implementing their control strategy, or represent a comprehensive response to the emerging threat of the Avian Influenza and other emerging and re-emerging infectious diseases. Each country that decides to participate would be able to present its proposals for consideration and support under the framework of the global program, using a combination of tools and mechanisms available. The individual country project will need to be designed in accordance with the overall guidelines of the GPAI Program, but taking into account the particular country situation, and in particular HPAI epidemiological status, existing capacity and available resources, as well as other ongoing efforts being implemented simultaneously in relation to Avian Influenza.

36. As in the case of previously approved HIV/AIDS, energy, telecommunications, and disaster risk management multi-country programs, the proposed Program approach would allow the Bank, working with other multilateral organizations and bilateral agencies, to help address individual country requirements in a more cost-effective manner by maximizing the use of similarities between country situations, while respecting the fundamental differences between them. Because of the global zoonotic nature of HPAI, it is important to ensure that any activities supported by the Program and aiming at strengthening national Veterinary Services would be in compliance with the international standards of OIE. This would be achieved with the global and regional services centers being established by OIE and FAO to support capacity building and technical assistance projects.

37. **Overall Financing Framework for Avian Influenza Control.** The WHO/FAO/OIE/WB meeting in Geneva (November 7-9, 2005), strongly endorsed the need to finalize the costing of integrated, country plans, and the regional and global requirements to support them. It also endorsed the need to spell out the financing framework at country level to respond to such costs, in preparation for the meeting to be hosted by the Government of China in January 2006. Chart 1 of Annex 3 shows what such a framework might look like, covering potentially available sources of external funding to help finance an integrated country program. This proposed framework, which is work in progress, assumes that: (i) existing resources (from government and the domestic private sector, and from external donors) will be reprioritized as far as possible, and that (ii) all donors will contribute to a single country program, and avoid pursuing separate approaches that might overlap or contradict each other. As the chart shows, the Bank is a potential channel for finance at country level, both using its own resources -- in particular via the proposed APL -- and through any available Bank-administered trust funds (see para 7 of Annex 3). As noted earlier, the APL is not expected to provide direct support to

regional or global activities while the proposed trust fund, if established, could provide support to the regional and global agenda.

38. On the financing side, apart from the proposed APL, and the possible reprogramming of existing relevant operations, another expected instrument is a proposed multi-donor trust fund (TF) to be administered by the Bank. The possibility of such TF has been discussed with several donors, and will be pursued further if donors so wish. The current expectation is that, if developed, its primary role would be to channel grant resources in support of integrated country programs, ideally as co-financing of the APL. However, the design of any such TF will remain under review until the potential role it might play is clear. Any proposal would necessarily be aimed at filling otherwise empty niches, and avoiding duplication.

39. **Bank Lending Instrument.** The global APL instrument, by visibly committing substantial resources and complementing activities supported by other international organizations and donor agencies, would help ensure the availability of adequate resources to fund priority investments and technical assistance for the rapid scaling-up of individual countries' responses. The APL instrument would enable the Bank to provide support in a flexible manner – when individual countries have met the eligibility criteria and when individual projects are ready to receive Bank support. While grant funding would be sought in parallel to finance country programs, countries would know up-front that they can rely on the Bank to support them in developing their preparedness and response capacities, if softer funding is available.

40. Under the global APL, individual countries would obtain separate loans and credits, and grants (as they become available) to finance their own national projects up to the global aggregate limit of US\$500 million. Since this Program is designed to provide emergency finance to participating countries to contain an outbreak of avian flu through early detection and rapid response measures, the operations under the Program would be processed under the Banks' emergency policy, OP/BP 8.50. The Program would treat specific emergency response projects in each country as "phases" of a horizontal APL (similar approaches include the Multi-Country HIV/AIDS Programs for the African and the Caribbean Regions, and the Energy Community of South East Europe APL).

41. The GPAI would include projects appraised and approved during the four-year period FY06-09. Assuming each of the individual country projects would need an implementation period of three-four years, the overall implementation period for the GPAI program would be FY06 to FY12.

42. The first one or two individual country projects would be presented to the Board for review and endorsement. Subsequent decisions to proceed with country loans/credits/grants would be made based on degree of readiness of the countries and their ability to meet the eligibility criteria. In accordance with the procedures for horizontal APLs, for each "follow-on" loan/credit/grant, the Project Appraisal Document (or Technical Annex in lieu of the PAD) would be circulated to the Board after approval of the loan/credit/grant by Bank Management. In the absence of requests from three or more Executive Directors for Board consideration of the loan/credit/grant, Bank Management approval would become effective 10 working days after circulation of the documents to the Board.

43. **Financing Eligibility and Criteria.** A country would qualify for support for an emergency project under the Program when it demonstrates its commitment and readiness to implement early detection and rapid response measures appropriate to the specific country conditions. As there is a wide variation of country conditions (i.e., widely differing needs and development levels, as well as implementation capacities, especially in very low income and low capacity countries in Africa and Asia), projects would need to reflect the environment in which they would be implemented with scaling and sequencing of project activities, management arrangements, cost-sharing provisions, and risk

mitigation measures appropriate to the Borrower's/Recipient's needs and institutional, fiscal and social reality.

44. To reflect the above, a country request for assistance under the APL would be eligible for financing under standard IDA/IBRD policies when it meets the following eligibility criteria:

- (i) For countries in endemic situation (e.g. Cambodia, China, Indonesia, LAO PDR and Vietnam), where new human infections are being detected, it has prepared and is implementing an HPAI Control Strategy;
- (ii) For newly infected countries (e.g. Croatia, Kazakhstan, Mongolia, Romania, Russia and Turkey) with an active outbreak of avian flu among poultry, but no human infection, the existence of an appropriate program of rapid response, detection and containment measures, including appropriate implementation and monitoring arrangements that the international agencies and donor community, including the Bank, could support.
- (iii) for countries at risk, with no outbreak, or that are at an early stage of an outbreak, government commitment and appropriate plan of early detection and rapid response, including appropriate implementation and monitoring arrangements that the international agencies and donor community, including the Bank, could support.
- (iv) For countries with very low income levels and very low capacity circumstances, including LICUS countries, special criteria and waivers would apply if a full-blown human pandemic were to materialize, to ensure that assistance would be available if and when needed, even if the country itself would hardly be able to generate or mobilize any effective AI response, to safeguard the global public good nature of the global avian influenza objective.

45. In response to requests for assistance from countries in either of the above situations, the Bank would support a needs assessment and appraise the proposed response and a country's readiness to its implementation. Since individual countries will be starting from different levels in terms of prevailing country circumstances, risk level, capacity, etc., the Bank would have to make an informed judgment as to whether a given country meets the above criteria. The Bank team would work closely with key multilateral organizations such as FAO, OIE, and WHO, and donor agencies, in making a judgment on the readiness to proceed with each country case.

46. **Assistance to countries in Non-Accrual Status (CNAs).** The World Bank cannot use its standard lending facilities in countries in non-accrual status (CNAs). It can use limited grants in CNAs with agreed re-engagement programs, but it cannot provide any support without re-engagement programs. Given this situation, options such as the following could be contemplated under the proposed GPAI facility: (i) other multilateral and bilateral resources, (ii) the Bank could assist CNAs to prepare and supervise new projects, if there is an agreed program to re-engage, (iii) individual donor TFs, (iv) making IDF available for CNAs for capacity building in LICUS, and (v) using LICUS TF resources.

47. **Program Characteristics.** Constituent loans/credits/grants would meet all applicable Bank policies, practices and standards as discussed below. Loans/credits/grants would vary in size, and the Bank/IDA will make every effort to meet the needs of the eligible countries. Proposed operations for less than US\$1 million would be carefully vetted for cost effectiveness. For any proposed activity which might be below this level, as well as for other requests for technical assistance, the option of reimbursable technical assistance would be available.

48. We anticipate that loans/credits/grants under this APL will be processed as emergency investment operations using procedures under OP 8.50 - ERL Procedures. The proposed use of BP 8:50 is in accordance with para 10 of the Bank's Operational Manual Procedures for Emergency Recovery Assistance. That is, the country projects to be financed under the GPAI would support prevention and mitigation of avian influenza in countries at risk. As proposed, such operations would assist in: (a) developing a national strategy; (b) establishing an adequate institutional and regulatory framework and arrangements for program implementation; (c) carrying out assessments of vulnerability and risks; (d) strengthening systems, facilities, and processes that are necessary for effective prevention and control of the avian influenza and human pandemic; and (e) funding needed goods, services, and consumables. While we anticipate that the APL Program would be the main vehicle for providing Bank support to its borrower countries to address and contain the avian flu, as with other emergency situations, in response to individual country circumstances the Bank would consider supplementing the response under the APL with other measures. These may include: (i) restructuring existing projects in relevant sectors (primarily health and agriculture) to add components to address avian flu through reallocation of outstanding balances and/or additional financing; (ii) canceling of outstanding balances under certain projects and, through special arrangements, channeling equivalent funds into an operation that would address the avian flu either under the APL program or a restructured project; and/or (iii) providing supplemental DPL financing in countries with ongoing DPLs where the situation merits such support.

49. Implementing agencies would be required to have in place adequate financial management arrangements that support each country-specific project in accordance with OP 10.02 on Financial Management. Disbursement arrangements would be developed and agreed with each country as part of each project's design, taking into account the country's institutional capacity, assessed risk, and the flexibility offered by the Bank's/IDA's disbursement procedures and policies under OP 8.50.

50. Individual loans/credits/grants would be processed at any time there is a country request (within the approved time frame) with an upper limit for individual and aggregate demand determined by the ceiling of the APL itself and subject to limitations, if any, imposed by country credit-worthiness and IDA country allocation and grant eligibility limitations. This approach would result in a significant reduction of the non-financial costs associated with processing of loans/credits/grants and therefore increase their attractiveness as an instrument for capacity and institution building to meet the needs of the eligible countries. Initial indications of demand suggest little likelihood that a significant portion of the amount designated under this APL would be used by any single country unless there is a major outbreak in a large country.

51. Given the urgency of the situation, following the recent experiences with HIV/AIDS projects in Africa and the Caribbean, preparation of country projects would give priority to detailing the activities to be included in the first year of the project with subsequent activities for later years to be refined in more detail as part of annual project reviews.

52. **Retroactive Financing.** To facilitate the prompt execution of key prevention and control activities, the individual country projects may include retroactive financing of eligible expenditures, which will have to be justified on the basis of the country's particular situation, its needs, and the financing available. In accordance with special procedures under OP 8.50, the total amount of retroactive financing will not exceed 20 percent of the loan amount and would cover eligible expenditures incurred by the Borrower up to 4 months before the date of the loan agreement. In exceptional cases, this period could be extended to start on the date of the first occurrence of the emergency. The nature of the goods and services to be considered for retroactive financing, as well as the period during which these expenditures could occur and the total amount involved, would be determined by the appraisal mission and recorded in the project documents (Technical Annex, PID and MOP). The same information should be provided in the Notice of Invitation to Negotiate and the

Notice of Status of Negotiations, and specifically included in the Loan/Credit/Grant Agreements. The Executive Directors should be informed of these arrangements through the Monthly Operations Summary (MOS).

53. In accordance with the Procurement Guidelines (paragraph 1.9) and with the Consultant Guidelines (paragraph 1.12), a Borrower may wish to proceed with the initial steps of procurement of works, goods and services. However, the procedures to be followed (including advertisement) should be in accordance with these Guidelines, as well as with the loan/credit agreement, in order for the eventual contracts to be eligible for Bank financing. The Bank shall review the procedures used by the Borrower. This undertaking would be at the Borrower's own risk and any concurrence by the Bank with the procedures, documentation, or proposal for award, will not commit the Bank to make a loan/credit for the project in question. For contracts signed prior to loan/credit signing, reimbursement by the Bank of eligible expenditures under the project would be only permitted within the limits specified in the loan agreement after effectiveness.

54. **Program Preparation and Supervision.** Program planning, preparation and supervision will be, as much as possible coordinated closely with all multilateral, donor and regional agencies that are active in this area. This will avoid a piecemeal approach to providing assistance and help build a common strategy and program for each of the countries. This is also done with the intention to draw on the expertise of each of these agencies and avoid duplication of effort and investments.

3. Program development objectives

55. The program development objective is to minimize the threat posed to humans by HPAI infection and other zoonoses and to prepare for, control, and respond to influenza pandemics and other infectious disease emergencies in humans. To achieve this, three areas will be considered for support: (i) prevention, (ii) preparedness and planning and (iii) response and containment.

4. Program components

56. In both the public health and animal health fields, short-and long-term actions need to be taken and an appropriate balance struck between the two. Immediate action is needed in a number of areas, but there is also a longer-term agenda given systemic shortcomings with respect to core public health functions and veterinary services. Work on both the short- and long-term fronts, therefore, needs to proceed in parallel, and efforts should be made to ensure that short-term responses are consistent with and contribute to proposed longer-term interventions. Setting priorities in both cases is essential. By concentrating the efforts on these, dual-use investments would generate benefits during normal times and in a pandemic. The program would finance activities under four components: (i) animal health, (ii) human health, (iii) public awareness and information, and (iv) implementation support, monitoring and evaluation. Even though the activities are organized by sectoral components, the program calls for, and will strongly endorse integrated national plans that ensure common objectives across sectors for dealing with this issue. Moreover, as knowledge about Avian Flu and influenza preparedness continues to evolve and given the diversity of the countries affected, these components are indicative of likely activities to be financed. Specific country programs should build in their design, these activities, as well as country knowledge and emerging technical updates and design issues. These components comprise a menu from which countries should select only those that are relevant to the state of the infection.

I. ANIMAL HEALTH COMPONENT

57. The program would support national prevention and control strategies proposed by individual countries to cover their needs in the short, medium or long-term. Individual country projects would be based on detailed assessments of the avian influenza epidemiological status, of the capacity of national Veterinary Services to cope with HPAI epidemic and the vulnerability of the poultry industry to new emerging infectious diseases. Individual country projects would support four areas of activity described below:

A. Enhancing HPAI Prevention and Preparedness Capability

A1: Adapting National Policy Framework. This sub-component would provide support to activities related to the improvement in the regulatory framework to address key policy issues to ensure that the recommended disease control, prevention and eradication measures are implemented in a uniform and effective way and in accordance with OIE standards and guidelines. In addition, this sub-component would support reviews of existing regulations and policies, and would fund related policy studies and dissemination workshops. More specifically this sub-component would support key diagnostic and assessment studies, including the following:

Evaluation of National Veterinary Services. The ability of a country to prevent, detect and control an HPAI epidemic depends on the quality of its national Veterinary Services. To be effective, national Veterinary Services should operate based on scientific principles and be technically independent from political pressures. To meet international standards set by the OIE, Veterinary Services need to develop and document appropriate procedures and standards for the implementation and management of animal health measures and international veterinary certification activities. To assist in this effort, the OIE has developed instruments to assist national Veterinary Services in carrying-out a self-evaluation and establish their current level of performance, form a shared vision with the private sector, establish priorities, and facilitate strategic planning. In this respect, the audit procedure, entitled “Performance, Vision and Strategy for Veterinary Services”, due to be incorporated into the standards published by the OIE as the reference instrument approved by the Member Countries, would be used for the evaluation of national Veterinary Services and supported under the GPAI.

Review of National Compensation Policy. Early detection and reporting, as well as rapid response, depend on the incentive for farmers to timely report sick poultry and therefore on an adequate compensation framework. Such payment can impose a significant fiscal burden on countries. The objective of the study is to review and strengthen existing national compensation policies' framework for HPAI.

A2: Improving HPAI Prevention and Control Planning. This sub-component would provide support to activities needed to help countries to prepare a National Emergency Contingency Plan for HPAI. Country-based disease control options and strategies will have to be defined by each country according to its specific conditions, constraints and possibilities (in particular, the capacity of its Veterinary Services, structure and importance of its poultry sector, and its status regarding HPAI). These country strategies will have to address a large number of inter-related issues to produce an effective response. The sub-component will provide support to activities needed to help each country to prepare and develop its own strategy to confront an HPAI outbreak. More specifically this sub-component would support the following activities:

Preparation of a National Emergency Contingency Plan for HPAI. Building on existing preparedness and action plans to prevent and control HPAI epidemics in domestic poultry, water fowl and wild birds, a team of national and international consultants will assist the Ministry in charge of

Animal and Animal production to prepare an Emergency Contingency Plan which will be presented to the Government for approval. The consultants will collaborate closely with the National Avian Influenza Committee (or equivalent) and all agencies involved in HPAI prevention and control, including departments of animal health, animal production, agricultural extension, diagnostic laboratories and research laboratories, as well as representatives from the private sector and civil society.

Attendance to National and International Conferences. The sub-component would also support participation of Veterinary Services officials and project staff in regional and international information exchanges and dissemination on avian influenza.

B. Strengthening Disease Surveillance, Diagnostic Capacity and Virus Research

58. As part of the prevention and preparedness effort for the countries which are free from HPAI, as well as part of the control strategy for the HPAI infected countries, the proposed component would support activities to strengthen national Veterinary Services, including the private and related sectors operating under its authority, and enhance animal disease surveillance, diagnostic and research capabilities. The component would have the following sub-components:

B1: Strengthening of Veterinary Services. Once the evaluation of Veterinary Services and related services has been completed, support would be provided to strengthen national Veterinary Services to bring them in line with OIE standards. Such support would include: (a) technical support for strengthening governance and updating legislation; (b) support for institutional and organizational restructuring and training of staff; and (c) upgrading of priority infrastructure (limited works, equipment, materials and supplies, and technical assistance).

B2: Strengthening Animal Disease Surveillance and Diagnostic Capacity. The sub-component would support the following activities: (a) improving animal health information flow among relevant agencies; (b) detection, reporting and follow-up of reported cases; (c) public and community-based surveillance networks; (d) routine serological surveys and epidemio-surveillance; and (e) improving diagnostic laboratory capacity. More specifically this sub-component would support the following activities:

Epidemiological Surveys. The lack of reliable epidemiological information, and the sound analysis thereof, has hampered the development of rational, targeted disease control measures in many countries. Thus, well-structured epidemiological studies and surveillance programs will be integrated with disease control measures, which will be then adjusted and improved as new information becomes available. In addition, participatory methodologies involving farmer, para-veterinarians, and community workers, will be used extensively, given the fact the major control targets are the small-scale and semi-commercial poultry production systems.

Community-based animal disease surveillance and early warning networks. The sub-component would finance the establishment at the community level of early warning systems to support a robust emergency reporting and feedback system against notifiable diseases. A critical objective of this sub-component will be to improve the commitment of all participants of the “epidemiological surveillance networks”. The sub-component would support training for animal health workers, and treatment of infected animals and reporting procedures. Farmers will receive hands-on training in detection of clinical signs. The sub-component would also provide basic bio-security equipment such as sprayers, protective equipment.

B.3: Enhancing Animal Diseases Information Systems. The sub-component would support the development of a uniform disease information system in each participating country, as part of their control program to provide better analytical capacity to enable them to participate in global disease information sharing, complying with their obligations as members of the OIE, thereby contributing towards progressively better global and regional control and eradication. The system would be linked with rapid and standardized methods of routine analysis of surveillance data, which would demonstrate important changes in the H5N1 situation, and promptly supply this information to field personnel.

B4: Strengthening Applied Veterinary Research. While a range of methodologies and tools are available to control HPAI, there are a number of aspects of the diseases that are not clearly understood. While some of these researchable issues are beyond the scope of this Program, it is proposed that funding be provided for studies linked with the national disease control plans. Some of these studies can be conducted by the participating countries directly; however, others will need international expertise. Technical assistance and competitive grants would be made available for carrying out applied research in the participating country. It is expected that many of these studies can be included in the national disease control plans and the disease control strategies can be revised and improved in light of new findings.

C. Strengthening HPAI Control Programs and Outbreak Containment Plans

59. The sub-component would provide support to countries where the disease is endemic, such as Cambodia, China, Indonesia, Lao PDR and Vietnam and newly infected countries, such as Croatia, Kazakhstan, Romania, Russia and Turkey, for the implementation of HPAI control and eradication measures. These measures included in HPAI Control Programs or Emergency Outbreaks Containment Plans, are intended as a rapid mobilization to respond quickly and effectively to HPAI outbreaks during the project lifespan. They would contain guidelines for the rapid activation of physical and human resources.

C1: Targeting virus elimination at the source. In developing countries, the specific HPAI control strategies and programs should include the principle of targeting the disease at source of infection. This sub-component would support the following activities: (a) destruction of infected and at-risk poultry (stamping out); (b) compensation to farmers and producing companies at a reasonable market-oriented price (a recent study indicates that in Vietnam the proposed compensation price should be 75 percent of the market price); (c) disposal of carcasses and potentially infective materials in a bio-secure and environmentally acceptable manner; (d) enhanced bio-security at poultry farms and associated premises, through bio-containment and bio-exclusion; and (e) control of movement of birds and products that may be infected, including controls at the interface of infected/non-infected areas and border controls.

C2: Supporting Vaccination Campaigns. This sub-component would support direct vaccination of poultry in countries where the virus is already endemic or in countries where other methods are not feasible. The use of vaccination to control HPAI must go in parallel with strategic field surveillance and epidemiological studies to identify virus sources, selection of priority hot spots, imposition of transport bans, and post-vaccination monitoring. Serological monitoring using the DIVA principle and the use of sentinel domestic ducks and chickens are essential measures to monitor vaccinated domestic duck flocks. This sub-component would support the use of good quality HPAI vaccines produced according to OIE standards and implemented according to FAO/OIE guidelines. The sub-component would also provide capacity building in vaccine quality control at the national level to ensure that vaccines are used with a clearly defined objective and time-phased exit strategy, linked to strict post-vaccination surveillance and monitoring.

C3: Human safety component. Due to the highly pathogenic nature of the HPAI virus to humans, particularly the Asian H5N1 strain, training of people in contact with live virus would be supported. This would include field workers involved in identification of the disease, farm workers involved in culling, and laboratory workers involved in virus isolation and diagnosis. Adequate resources would be allocated for training and equipment (biosafety hoods and appropriate personal protective clothing).

C4: Pro-poor disease control programs. In many regions of the world, the smallholder sector has little or no access to animal health services and it is highly exposed to the consequences of a HPAI epidemic. This sub-component would provide support to low-income groups that are particularly vulnerable by including activities specifically designed to increase small farmers' awareness, improving animal health services at the community level, and providing grants for additional compensation in case of economically vulnerable groups.

D. Improving Bio-security in Poultry Production and Trade

60. On a longer term basis, improving bio-security in poultry production and trade is an important strategy to guard against the damaging effects of HPAI, but is also a complicated intervention requiring understanding of the whole value chain. Moreover, restructuring requires different approaches in different countries by virtue of the differences in their poultry sector infrastructures, marketing characteristics, backyard versus commercial poultry production, and socio-economic impact. This component would support the restructuring of the poultry industry when needed. Restructuring should be seen as a gradual process, affecting the various segments of the sector in different ways and at different rates. In principle, the main activities to be considered under this component are: (a) restructuring of production compartmentalization and zoning; (b) adjustment to marketing systems and transport; (c) new regulations for national/international trade; (d) reassessing farming systems and practices; (e) introducing segregation of species; (f) re-stocking supply of poultry breeding stock; and (g) strengthening bio-security at producing and marketing sites.

II. HUMAN HEALTH COMPONENT

61. In the public health field, short-and long-term actions need to be taken and an appropriate balance struck between the two. While immediate steps can be taken to address the crisis, there is also a longer-term agenda given systemic shortcomings with respect to core public health functions. Work on both the short and long-term fronts, therefore, needs to proceed in parallel, and efforts should be made to ensure that short-term responses are consistent with and contribute to proposed longer-term interventions. Setting priorities in both cases is essential.

62. Building an effective national public health response would be part of an integrated national plan, which would require an enabling environment and the necessary resources to bring proven interventions quickly up to nation-wide scale. Country projects under the proposed APL would help to operationalize some elements that are contemplated as part of the global strategic plan, expanding and intensifying the responses rapidly, taking into account the epidemiological conditions, institutional capacity, and needs and priorities of the participating countries. To prevent an outbreak among humans, initial support would concentrate on a few but vital areas, including launching or expanding regular seasonal flu vaccinations, which would encourage firms to step up vaccine production capacity, strengthening surveillance and laboratory networks, and stockpiling anti-virals. As it is unlikely that the global spread of a pandemic influenza virus could be prevented once it emerges, the emphasis would be on reducing its impact. Several tools would help achieve this aim: (i) year-round surveillance, in those countries with the capacity to do so (in many African and Asian very-low income and low-capacity countries, such surveillance can only be undertaken by global or regional {multi-country}

entities, to the extent possible); (ii) effective and accurate methods of diagnosis; (iii) social distance interventions; (iv) vaccines (once they become available); (v) anti-viral drugs; and (vi) strengthened medical services. The interventions would be grouped in three broad categories:

A. Enhancing Public Health Program Planning and Coordination

63. Funding would be available for: (i) establishing inter-sectoral command and control system structures that would include public, private, civil society organization (e.g., religious groups) and the armed forces that often play a key role in most countries during disaster preparedness and response, (ii) identifying crucial gaps in infrastructure and resources, as well as in laws and/or statutes which, if not corrected, may interfere with an effective response, (iii) defining operational priorities, (iv) ensuring coordination among affected units, and (v) mobilizing additional resources. Support would be provided for the review and/or promulgation of: (i) statutory provisions regarding quarantine laws and how they apply in a public health emergency; (ii) statutes for mandatory vaccination during an infectious disease emergency; (iii) laws and procedures for closing businesses or schools and suspending public meetings during a declared state of emergency; (iv) medical volunteer licensure, liability, and compensation for retired and non-medical volunteers; and (v) workman's compensation laws as they apply to health care workers and other essential workers who have taken anti-virals for prophylaxis. In many low-capacity countries in Africa and Asia and elsewhere where the rule of law is either weak or hardly existent, or the Government's impact over large parts of the economy and society is minimal, the legal instruments mentioned above would be less immediately relevant, but the same objectives would be supported through the funding of other direct means.

64. Additionally, support would be provided for health preparedness and response plan preparation, test runs of the plan at national level involving regional and local levels, as well as supranational levels. These plans would include activities to protect healthcare workers and other personnel and ensure they can and are willing to continue to do their job in a pandemic.

B. Strengthening of National Public Health Surveillance Systems

65. To assess risks to public health and establish early warning systems to guide protective measures, information is needed on the extent of influenza infection in animals and humans and on circulating viruses. National surveillance systems, and in the case of many African and Asian low-capacity countries, as well as very small countries, regional or global surveillance, must be improved urgently in potentially affected countries. When outbreaks in animals occur, active human case detection should be done by a coordinated animal-public health team.

66. There are four main national surveillance areas that need to be strengthened: (i) virologic surveillance to report the number of clinical specimens tested for influenza and the number of positive results by virus type and sub-type; (ii) surveillance for influenza-like illness (ILI) to report on the number of patient visits for ILI by age group and the total number of patient visits each week; (iii) surveillance for influenza and pneumonia deaths to report the total deaths that may be influenza-related; and (iv) regional and local epidemiologists assess and report influenza activity levels in their respective localities. Current surveillance systems should be enhanced prior to the start of a pandemic, to assure that the high demand for timely information that can be anticipated in a pandemic can be met. In infected countries, it is also recommended to carry out active sero-surveillance of the population at risk to complement the animal health surveillance strategy. To this end, the APL would support the following activities (see more details in Annex 5):

- Improvement of health information and telecommunication systems;
- Improvements of public health laboratory networks;

- Training;
- Studies and research in epidemiological surveillance; and
- Technical assistance.

67. For many very poor African and other low-capacity countries such surveillance, communication, diagnostic, training, epidemiological and research activities will not be possible to pursue in the short- to medium term and special action will be necessary to ensure local, regional and international coverage of these activities (similarly, Annex 5 covers mostly those countries with reasonable health care systems with a minimum critical mass in these fields; special analysis and appraisal will be necessary for the capabilities of these countries in these fields).

C. Strengthening Health System Response Capacity

68. **C1: Social Distancing Measures.** The most effective measure to prevent contracting avian influenza would be to limit, as much as possible, contact with the public. Therefore, the project would support the implementation of immediate term responses i.e. the classic “social distancing measures” -- such as school closings, backed up by a well-designed communication strategy. For the longer term, options with industry to improve anti-viral and vaccine capacity would need to be explored and supported. The social distancing measures will probably be enforced on advice from health institutions, but health institutions will not be the enforcing group. As a result, financing would be made available to develop guidelines on social distancing measures (e.g., in phases) to operationalize existing or new laws and regulations, support coordination among sectoral ministries and agencies, and support the ministries of health on the caring of health and other personnel involved in pandemic control activities. Additional preventive actions would be supported that would complement social distancing such as personal hygiene promotion, including promoting handwashing and proper cooking, and distribution and use of masks, along with increased awareness and promotion of community participation in slowing the spread of the pandemic.

69. **C2: Vaccination.** Under this sub-component, support would be provided for launching or expanding regular seasonal flu vaccination as a vital step to prevent an outbreak among humans. In case of an avian influenza pandemic, when a vaccine becomes available, funding would be available for implementing an influenza vaccination program that rapidly administers vaccine to priority groups and monitors vaccine effectiveness and safety. To this end, support would be provided for the rehabilitation, expansion, and equipment of cold storage facilities to strengthen the distribution and storage of vaccines and other perishable medical products. In addition, national advance purchase agreements (NAPAs) of vaccines would be considered. This measure would help operationalize a public private partnership on influenza pandemic vaccines and achieve equitable distribution by matching capacity with total pandemic demand. Especially in African and other countries with exceptionally weak health care systems, national immunization structures and management will be targeted to ensure as wide a coverage as possible.

70. **C3: Prophylaxis and Drug Therapy.** In a pandemic, vaccine supply levels will change over time. That is, when a pandemic first strikes vaccines will likely not be ready for distribution. The use of anti-viral drugs, while not a panacea, would be part of the strategy to contain an avian influenza pandemic and to reduce morbidity and mortality. Governments and international agencies, such as WHO, are stockpiling anti-viral drugs. Therefore, support would be provided for the purchase and distribution of anti-viral drugs, determine the susceptibility of the pandemic strain to existing influenza anti-viral drugs, and target use of available supplies; adoption of measures to avoid inappropriate use to limit the development of anti-viral resistance and ensure that this limited resource is used effectively. The objective of anti-viral prophylaxis is to prevent influenza illness and would need to continue throughout the period of exposure in a community. Support would also be provided to monitor patient

compliance with treatment regimes and the onset of resistance to anti-viral drugs. Country programs need to outline, as part of their preparedness plans, how and when anti-virals can be used, including definition of "essential personnel" and targeting mechanisms, where they apply. In addition, issues of availability, equitable access and pricing need to be addressed.

71. Given the current worldwide shortage of the drug and the limited stock available to the countries, priority would be given to population groups most exposed to immediate risk. Taking into account the situation observed today, country projects would support the use of the anti-viral drugs for: (i) post-exposure: at an early stage, when isolated cases or small outbreaks are occurring, anti-viral drugs can be given to persons known to have been in close and unprotected contact with suspected or confirmed cases, and workers at risk of occupational exposure; and (ii) extended prophylaxis: should avian influenza reach the pandemic stage, individuals who have a potential continued exposure to avian influenza because of their work would be offered either short term post-exposure prophylaxis (5-7 days following exposure) or a course of extended prophylaxis depending on the relative risk of exposure (on a daily basis for up to 6 weeks); and (iii) treatment: in symptomatic patients suspected of having avian influenza, the current recommendation for Tamiflu administration is 275 mg. capsules a day for 5 days.

72. As the situation is evolving rapidly, adjustments to the above arrangements would be considered in order to take into account: (i) an increasing number of countries that might be granted the sub-license to manufacture anti-viral drugs, reducing the shortage of the medication; (ii) more accurate information obtained on the actual avian influenza threat; and (iii) better appreciation of when a specific flu vaccine could be available in large quantities.

73. **C4: Medical Services.** Assistance would be provided to the health care system for preparedness planning to provide optimal medical care and maintain essential community services. Except for very poor countries in Africa and elsewhere where basic health care structures hardly exist and where direct international, regional or bilateral support will be needed, for which IDA recurrent costs support will be provided. Strengthened clinical care capacity could be achieved through financing plans for establishing specialized units in selected hospitals (to the extent that these exist in very poor countries), treatment guidelines, and hospital infection control guidelines. Also, strategies would be developed to increase hospital bed availability, including deferring elective procedures, more stringent triage for admission, and earlier discharge with follow-up by home health care personnel. As an influenza pandemic will place a substantial burden on inpatient and outpatient health care services, support would be provided under the APL to rehabilitate and equip selected health facilities for the delivery of critical medical services and to cope with increased demand of services posed by the pandemic, develop intra-hospital infection control measures, mobilize additional health personnel, including in some countries local and international medical non-governmental organizations, training or health personnel, provision of drugs, vaccines, and other medical inputs, diagnostic reagents, including kits, other operational expenses such as those related to mobilization of health teams and salaries, and technical assistance. Additionally, support would be provided to improve access to information and scientific knowledge using knowledge management tools, including the review and synthesis of scientific information for distribution to the public health community, and undertake applied and clinical research..

74. In addition, support would be provided to help establish health care facilities in non-traditional sites to help address temporary surge needs. As not all ill persons will require hospital care, but other support services, strategies would be developed to provide home care, delivery of prescription drugs, and meals to infected individuals. Local planning would be needed to address the delivery of these and other essential functions such as police, fire and utility services.

75. **C5: Procurement and Supply Management (PSM).** PSM chain systems failures in the health sector principally due to weak country capacity have been extensively documented. Support will be provided to address this challenge by assessing key obstacles associated with the delivery of these services in a systematic manner, and by offering practical solutions.

III. PUBLIC AWARENESS AND INFORMATION COMPONENT

76. The component is designed to safeguard human health, in particular for extension staff, animal health workers, poultry producers and their families, by improving public awareness and information. It would have two sub-components: (i) capacity building and (ii) information and communication services.

A. Capacity Building

77. The development of a strong, sustainable human resource base is one of the most important objectives of country-specific disease control strategies. Among the affected countries, there is a great variation in capacity to deal with serious outbreaks of infectious diseases, and therefore capacity building efforts need to be tailored to specific circumstances prevailing in each country. This sub-component would support: (i) the needs assessment of Veterinary Services (OIE audit of quality) and livestock extension staff and health workers at the central and local levels and the preparation of training programs and materials; and (ii) training of trainers (TOT) and the training of farmers in animal health and husbandry and of health workers in better identifying symptoms and providing recommendations to the public in control measures. Capacity would involve animal health governance and policies, institutional strengthening and human and physical resource development. The governance and policy aspects would be supported by the global and regional service centers established by OIE and FAO. On the institutional side, training would be supported in various aspects of policy development and economic impact assessments to include poultry sector restructuring, compartmentalization and zoning, compensation and emergency preparedness planning. At the technical level this would include disease detection, laboratory diagnosis, risk-based surveillance, risk analysis, vaccine quality control, vaccination delivery and monitoring, and bio-security. On the physical side, laboratory diagnostic and surveillance capacity would be strengthened by upgrading equipment and disease information systems.

B. Information and Communication Services

B1: Communication preparedness. Activities would include developing and testing messages and materials to be used in the event of a pandemic or emerging infectious disease outbreak, and further enhancing infrastructures to disseminate information from national to state and local levels and between the public and private sectors. Communication activities will support cost effective and sustainable methods such as marketing of “handwashing” through various communication channels via mass media, counseling, schools, etc, and integrated into avian flu specific interventions as well as ongoing outreach activities of ministries and sectors, especially ministries of health, education, agriculture, and transport. Support would be provided for information and communication activities to increase the attention and commitment of government, private sector, and civil society, and to raise awareness, knowledge and understanding among the general population about the risk and potential impact of the pandemic and to develop multi-sectoral strategies to address it. In some countries, especially in Africa, community mobilization will take place through institutions that reach the local population, especially in rural areas like for example the church and tribal leaders. In addition, support would be provided for: (i) the development and distribution of basic communication materials (such as question and answer sheets and fact sheets) on influenza, influenza vaccine, anti-viral agents, and other relevant topics; (ii) general preventive measures such as “dos” and “donts” for the general public; (iii)

information and guidelines for health care providers; (iv) training modules (web-based, printed, and video); (v) presentations, slide sets, videos, and documentaries; and (vi) symposia on surveillance, treatment and prophylaxis.

B2: collaboration with Stakeholders. The multi-dimensional problems associated with HPAI infection necessitate collaboration from a wide range of stakeholders within each country, which has to be supported by broad communications and information campaigns to improve public awareness. The major stakeholders include various ministries (Planning, Finance, Agriculture, Health, Road and Transport, Livestock Departments, Veterinary Departments, national research institutions and diagnostic laboratories), NGOs, civil society, private sector companies and associations (e.g. large poultry production companies, farmers' associations, veterinarians and farmer involvement at the grass roots level). The sub-component would support activities designed to improve the effective coordination and collaboration among these stakeholders.

B3: Developing Pilot Models for Community-based Rapid Communication. This sub-component would support the development and implementation of training courses in communications methodology for extension and veterinary staff as well as health workers at the central and local levels. It would include preparation of local programs, preparation and dissemination of information materials, and the provision of communications and information equipment for use at the local and central levels.

IV. IMPLEMENTATION SUPPORT AND MONITORING AND EVALUATION COMPONENT

78. The program would support the strengthening of public structures for the coordination and management of the individual country projects, including central and local (decentralized) arrangements for coordination of activities, financial management and procurement.

A. Project Management

79. This sub-component would support costs associated with project coordination. National Steering Committees for Avian Influenza Control or similar committees already working on these issues or created in the past to handle emergencies could be reactivated in each participating country to provide general policies and guidance for Program implementation. The Committee/s is to comprise human health and veterinary agencies tasked to oversee AI control and eradication operations. To ensure effective operation of the National Steering Committee, the Committee should be chaired by a high level official (Minister's level) of a central ministry or a Deputy Prime Minister or equal ranking official. The Committee/s will also be responsible for reviewing annual work plans and ensure coordination and linkages across relevant agencies and international partners.

80. Existing coordination structures operating in the sector ministries/agencies or working to support Bank-financed operations in the agriculture/livestock/health sectors will be entrusted with coordination of Program activities supported by individual projects, as well as fiduciary tasks of procurement and financial management. The relevant structures will be strengthened to become a "Program Unit". They will be strengthened by the recruitment of additional staff/consultants responsible for overall administration, procurement, and financial management under country specific projects. Agreement is to be reached at the individual country level to second to these structures one senior officer from relevant agriculture/animal health/human health departments of relevant ministries. These officers are to be appointed as full time Project Coordinators in charge of the respective components for which their line agency is responsible. The Project Coordinators, together with the additional staff to be recruited for overall administration, procurement, and financial management will form the Program Unit.

81. The Program Unit, under the overall direction of the Committee/s would be responsible for coordinating with relevant government departments to guide and monitor project implementation at the central and local levels. The relevant government department will be responsible for the preparation of annual work programs (WP) and budgets as well as quarterly and annual project management reports (PMRs). The Program Unit will be responsible for consolidating the annual work programs and budgets for submission to their relevant ministries and the Bank. At the local level, implementation would be the direct responsibility of each regional/provincial agricultural/health authority. Small units should be established at the local level comprising officials from health/agriculture to work under the supervision and guidance of the central Program Unit.

B. Monitoring and Evaluation (M&E)

B1: Training. This sub-component would support training in participatory monitoring and evaluation at all administrative levels, a mid-term evaluation workshop, and development of an action plan for M&E and replication of successful models. It would support the following activities:

- Training in M&E;
- Developing a M&E plan for the specific country projects;
- Implementation of baseline studies;
- Mid-Term evaluation of the project;
- On-going participatory monitoring and evaluation; and
- Final project evaluation.

B2: Program Monitoring and Impact Evaluation. Support would be provided to develop project monitoring and impact evaluation assessments. Two types of M&E are envisaged:

B2(i) Monitoring of project implementation. This is a function of the Program Unit, which would collect relevant data from line ministries and other implementation agencies and then compile them into semi-annual or quarterly progress reports (as the case may be) focusing on status of physical implementation by component, use of project funds and monitoring indicators. Specific surveys would be conducted to obtain data for this purpose. Annual expenditure reviews would be conducted to assess government commitment to strengthen the public health functions as measured by budgetary allocations and their distribution by activity.

B2(ii) Impact evaluation. The aim of evaluation is to assess whether the interventions are effective or the Program is having the desired impact. The evaluation will include both quantitative and qualitative aspects and be conducted on an annual basis. The quantitative aspects will rely on new information systems and surveys implemented as part of the various components of the project, currently existing data sources, and primary evaluative data collection efforts. The goal of the qualitative aspect of the evaluation will be to document perceptions of program managers, staff, patients, and local and national leaders. Qualitative information will be collected using site-visit interviews, focus groups, and respondent surveys.

5. Lessons learned and reflected in the program design

82. Relevant lessons for the design of the proposed operation have been drawn from previous World Bank/IDA and FAO-supported emergency recovery projects, and from OED. All these experiences and lessons learned have been taken into account in the design of the proposed GPAI operation. These included the Vietnam Avian Influenza Emergency Recovery Project (approved in early FY05 under OP 8.50 procedures), which is the only project that has been approved by the Bank in response to the Avian Influenza so far.

83. These lessons learned indicate that project success depends to a large extent on the speed of the response provided and, particularly when dealing with smallholders' production systems, a speedy, efficient and transparent distribution of suitable key inputs is clearly a major factor in limiting the impact of a crisis and hastening recovery. A performance audit of some of the emergency projects supported by the Bank in various regions drew the following general lessons: (i) emergency projects should avoid policy conditionality; (ii) project design must be simple and take into account a realistic assessment of the existing Borrower's capacity and other stakeholders capacity, i.e. NGOs; (iii) a speedy appraisal and approval are crucial to provide a prompt response and a substantial contribution to project success; (iv) procurement arrangements need to be flexible and should be finalized at an early stage; (v) mitigation and prevention measures should be included in the design to minimize impacts of a possible recurrence of the disaster; and (vi) realistic assessments should be made of counterparts absorption capacity, as well as of the effective communications and coordination mechanisms among all relevant stakeholders.

84. Even though the Vietnam Avian Influenza Emergency Recovery Project has been in implementation for only about one year (effective on November 9, 2004), the main recommendations arising from its implementation have been the following:

- (a) Preparedness is a key factor. While Vietnam had a national strategy document to control avian influenza in the domestic poultry population, it was not clearly understood and shared by all relevant agencies and stakeholders and some aspects of the response have been lagging behind.
- (b) A two-pronged strategy is recommended. This should include: (i) the control of avian influenza at the source in high-risk regions (through aggressive measures including culling, movement control and vaccination campaigns for poultry and ducks); and (ii) simultaneously prepared short and medium-term measures to minimize the risks to humans and prepare for an eventual pandemic.
- (c) For implementation arrangements, it is important to have a coordination structure which is empowered with multi-sectoral responsibilities, for instance at the Prime Minister's Office level, and to have full time project coordinators to implement activities in a "crisis situation".
- (d) A well-designed "compensation framework" is an essential element to obtain real cooperation from affected stakeholders (farmers/producers) and to ensure the efficacy of the surveillance and diagnosis mechanisms.
- (e) The importance of strengthening the technical, scientific and operational capacity of the relevant participating agencies should not be overlooked. The AI crisis highlighted several weaknesses in the existing animal health and public health services systems, including: poor surveillance at the local level, weak diagnostic capacity, lack of epidemiological expertise and information system, and inadequate operating budget to bear the additional costs of physical and human cost to contain the spread of the disease.
- (f) There is an urgent need to organize an effective national response, including all technical ministries in charge of agriculture/animal health and human health, as well as other relevant sectors, at the national and sub-national level, in case of a human epidemic.
- (g) It is extremely important to raise awareness in the public and private sectors from the initial moments, and to strengthen effective coordination mechanisms for the implementation of the necessary technical responses, involving the Government, the donor community, the private sector and the civil society.
- (h) Attention should be given to support the integration of each country to a regional and global framework for the control of HPAI, and more broadly of all trans-boundary animal diseases and other emerging infectious diseases, to increase cost-effectiveness and ensure the harmonization of activities and responses.

85. Some important lessons learned from the response to the recent **SARS epidemic** have also been incorporated in the design of the proposed GPAI program. First, international and national surveillance is clearly vital in preventing the spread of diseases. Countries with effective surveillance mechanisms and information dissemination channels were able to contain the spread of SARS at a relatively low social cost, while those lacking such mechanisms paid a greater price for their failure. Second, the outbreak of SARS highlighted the inadequate preparedness of public health systems to cope with outbreaks of epidemiological diseases. This was a reflection of weaknesses in public health policies and poor coordination and cooperation among relevant institutions, both at the national level and within countries. Lack of financing and commitment, shortage of trained health personnel and inadequate and insufficient research and development were additional problems, all of which need to be addressed. Finally, careful adherence to basic public health and infection-control measures -- such as source containment, case management, contact investigation, infection control at health care facilities, and community containment -- led to the global control of a snowballing epidemic within four months, despite the lack of a rapid diagnostic test, a vaccine, and an effective therapy. This clearly indicates that the GPAI supports a holistic response to the spread of infectious diseases, since these countries need to be prepared to face other emerging challenges beyond AI.

86. Some important lessons learned from the response to the HIV/AIDS epidemic⁵ are incorporated in the design of the proposed GPAI program. They include:

(a) **The need for high level and sustained political commitment and leadership.** This kind of leadership is expected to respond quickly to short-term needs and confront the potential AI pandemic in the medium- term. The decision to establish coordination bodies at the highest political levels accords the necessary visibility and stature to the effort. In addition, it would help governments to be more strategic and selective, to prioritize, using available capacity to implement activities that will have the greatest impact.

(b) **A comprehensive multi-sectoral approach of prevention, treatment, care and support services.** While emphasis must still be placed on prevention as the most cost-effective means of managing the AI threat, programs should seek to address the whole spectrum of prevention, treatment, care and support services (e.g., compensation for farmers). The provision of drugs and vaccines under the programs would be done with the necessary capacity building including training of health care workers, strengthening of surveillance systems, laboratory networks, and health care services. By strengthening national institutions, the program would help manage and implement the long-run response, particularly in the health sector. This said, the OED evaluation found that there were two important caveats to the lesson of the need of a comprehensive multi-sectoral approach. First, there is a need to be strategic, and selective and to prioritize activities that will have the greatest impact on the epidemic, and, second, even in a multi-sectoral approach, the role of the health sector is critical.

(c) **Monitoring and evaluation is critical in the scaling-up of a national response.** Strengthening of both surveillance and monitoring and impact evaluation systems to provide timely information for policymakers on AI trends and management information for better program management of the response is an important feature of the program. This would improve local evidence-base for decision making and ensure that country programs are guided by relevant and timely locally produced evidence and rigorous analytical work.

⁵ World Bank. 2005. Committing to Results: Improving the Effectiveness of HIV/AIDS Assistance. An OED Evaluation of the World Bank's Assistance for HIV/AIDS Control. Washington, D.C.

(d) **Recognition of all stakeholders.** All key stakeholders, both at the country and international levels, are important in dealing with the AI threat and it is important to ensure that mechanisms are put in place for the participation of line ministries, other public agencies, private entities and NGOs in the design and implementation of the Program. In addition, there is need to provide information to the public to reduce uncertainty surrounding the disease. OED's evaluation also carried two additional messages related to stakeholders. First, is critical to articulate the objectives of engaging different segments of civil society in specific activities (in line with their comparative advantages) and to subject these actors/activities to rigorous evaluation. Second, efforts should focus on selective sectors, whose activities have the greatest potential impact on the epidemic, and should ensure adequate resources to supervise their activities.

(e) **Building a strong fiduciary architecture.** A strong fiduciary architecture must go hand-in-hand with rigorous appraisal to ensure that funds are used in support of the most cost-effective interventions.

(f) **Prioritizing interventions.** Greater consideration should be given to cost-effectiveness and impact and ensuring adequate funding to implement priority national plans.

(g) **Address slow start ups.** First year implementation often shows a slow start for line ministries and other organizations. There is a need to avoid short-cuts in project preparation, which could lead to delays in effectiveness of legal agreements and implementation. Learning from this lesson, implementation would be guided by detailed Operational Manuals, and annual implementation plans that include activities that are ready for immediate scaling-up.

87. Important lessons for the preparation of a possible avian flu outbreak in low and very low capacity countries can be derived from previous experiences of infectious disease outbreaks as for example meningitis, Ebola hemorrhagic fever, Rift Valley Fever and other infectious diseases in Sub Saharan Africa. These experiences have shown that weak surveillance systems, severely understaffed health facilities, low morale in health staff, weak and often lacking health system infrastructure and laboratory capacity make these countries a very challenging environment to respond effectively to an infectious disease outbreak. The recent outbreaks of Ebola in the Democratic Republic of the Congo and Marburg in Angola highlighted the need for improved disease surveillance at the local level, an improved network for transmitting disease data to the provincial and national level, a network of reference laboratories in Africa and an improved system of regional and inter-country communicable disease control strategies. The outbreak of Rift Valley Fever in northern Kenya provides an example of a zoonosis in which large numbers of both animal and human cases occurred. One of the key lessons from this outbreak is that in areas where resources for disease diagnosis and surveillance are limited adequate control of zoonotic infections requires coordination of human and animal disease surveillance programs, at the district and regional level to make more effective use of limited resources. Timely detection and response to meningococcal meningitis in Africa also provides important lessons for preparing for a possible avian flu outbreak. The control of meningitis epidemics relies on early epidemic detection and mass vaccination campaigns, that have proven to be feasible under circumstances with very weak and sometimes absent functioning health systems.

88. In terms of public health, the following relevant lessons were derived from emergency operations:

- (a) Key data needs should be anticipated and infrastructure developed to provide information that reduces the number of assumptions (what is not known is as important as stating what is known).

- (b) The program should include mileposts for periodic re-evaluation, so that necessary changes can be made based on new information.
- (c) External reviews of the program should be conducted periodically to increase objectivity and improve decision making.
- (d) All localities should be able to respond to a pandemic and implement mass vaccination programs effectively. Funding to regional and local levels for preparedness and infrastructure development coupled with guidance and technical support are necessary. National oversight and assistance is important to assure nationwide protection and consistency of the response.
- (e) Surveillance systems should be in place, preferably, before starting the program. Communications materials should be developed to educate health care providers and the public.
- (f) Always keep in mind the principle: “expect and plan for the unexpected”.

6. Alternatives considered and reasons for rejection

89. Regular individual Bank operation vs. Adaptable Program Lending. At the global level, countries require assistance for operationalizing strategies and plans to scale-up prevention and control efforts. Because some countries are advanced in preparing national plans, while others only have initial plans that would require concerted technical assistance, it was decided that a horizontal APL along the model of other global APLs approved by the Bank for HIV/AIDS would allow the flexibility for the Bank to: (i) respond immediately to the countries with advance preparation plans given the window of opportunity that exists in the world for scaling-up preparedness and response at the national level; (ii) not penalize the countries that have prepared projects and taken the required steps; (iii) allow the slower moving countries to come on board at a later stage; (iv) follow through with building capacity for long-term sustainable prevention and control efforts; and (v) ensure that the Bank working with other international partners is fully responsive to the particular needs of member countries as they arise.

90. The APL instrument gives the Bank the flexibility to match its IBRD and IDA commitments to the pace of its clients. The use of a regular investment loan instrument would have required the Bank to commit the Bank to make available the full US\$500 million APL amount up-front and would similarly have required the borrowers/recipients to assume obligation well ahead of being able to utilize the funds. All member countries would know up-front that they can rely on the Bank to support them in achieving the goals of the APL when they meet specific eligibility criteria and when they need Bank support. A global approach, and the regular monitoring and benchmarking that will take place under the APL, would provide higher publicity and awareness, peer support, and also peer pressure/incentives for countries to improve performance so as to avoid falling behind other countries.

91. Using the APL would also contribute to an effective global response through the exchange of information and sharing of experience about country-specific projects prepared and implemented according to different stages of the epidemic, income levels, and the socio-economic status of those who are infected. It would also reduce the cost of preparing and supervising small operations through the involvement of other international donors and regional organizations.

92. **Restructure of and “additional financing” to existing projects.** An alternative that was considered was **only** to restructure ongoing projects and inject financing, in the form of additional financing (credits/loans) to support the implementation of the activities contemplated under this APL. While including this option as part of the APL, it was decided that the importance of the issue and the need to scale-up the response at the country and multi-sectoral-level, requires additional focus and impetus to facilitate the implementation of priority activities. A separate project option would allow for the establishment of a broader policy framework and alternative mechanisms to manage resource use and monitor the implementation of activities. More specifically, separate projects would allow the preparation of multi-sectoral national plans that include the engagement of different governmental

institutions and civil society, as well as scaled up efforts to serve the entire population. They would also facilitate advocacy and communication to mobilize political support at the highest political level needed for mounting effective and sustainable prevention and control efforts.

C. IMPLEMENTATION

1. Partnership arrangements

93. The Bank and the international community can play a key role in the response to Avian Influenza, especially at the country level where there is a need to develop an overall framework to guide national action plans that can be the basis for government and donor support. Such a framework should address both animal and public health aspects as well as economic impact. Many of the investments needed to address this disease are core public health and animal health functions that are considered "global public goods", thus, necessitating a global and regional response with support from the international community.

94. Based on the Global Strategy for the Progressive Control of AI prepared by WHO, FAO and OIE, combined with the three institutions' role, mandate, comparative advantages and collaborative arrangements, the following proposed global and regional activities and shared responsibilities have been agreed upon by OIE and FAO for the implementation of the proposed GPAI.

- (i) Support to the World Fund for Animal Health, for the OIE global governance center for animal health and the FAO operational center for transboundary animal diseases;
- (ii) Support to the OIE/FAO Avian Flu Network (OFFLU), the new worldwide AI network that will improve collaboration between reference laboratories specialized on AI in animals, coordinated by OIE and FAO and laboratory networks focusing on human influenza coordinated by WHO;
- (iii) Support to the Global Early Warning System (GLEWS), the joint FAO, OIE and WHO initiative for the prediction of animal diseases including zoonoses, through sharing information, epidemiological analysis and joint field mission whenever needed;
- (iv) Support to OIE-FAO Regional Quality Centers, hosted in OIE Regional Representations and Offices, according to the OIE-FAO agreement under the Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs), for the OIE regional representations and offices to build the capacity of VS and stakeholders leaders and for the technical support to operations (FAO-OIE);
- (v) Support to major FAO and WHO initiatives to provide coordinated support for AI surveillance and monitoring including laboratory diagnostic and support to policy and economic analysis of avian influenza;
- (vi) Support to FAO, WHO and others for Epidemiological Investigations, for the required research at international level for a better understanding of AI epidemiology, in particular the immediate need to investigate the ecological and epidemiological relationships between AI virus, wild birds and poultry and humans; and
- (vii) Support to the preparation of country Operations (FAO, WHO and OIE back-stopping technical support to countries and donors).

95. The governments of some affected and at risk countries are already undertaking a number of programs, supported by international organizations and multilateral and bilateral donors. For example, WHO and FAO have national Technical Cooperation Programs (TCPs) in East Asia, South Asia, ECA, and Africa. These TCPs provide technical assistance and training, protective clothing, laboratory materials and spray equipment; and support to the development of country strategies and preparation of emergency plans. FAO and WHO also have sub-regional TCPs to support networking of surveillance

teams and diagnostic laboratories and the development of policies on disease control and industry rehabilitation.

96. The Bank is financing the Vietnam Avian Influenza Emergency Recovery Project (approved June 2004), through a US\$5 million emergency recovery credit. FAO is contributing an additional US\$0.55 million mainly for technical assistance and the Government of Japan is financing a JSDF Grant in an amount of US\$1.8 million to support smallholder recovery from AI and vigilance against further outbreaks. The objectives of the project are threefold: (a) to strengthen disease surveillance and diagnostic capacity in the control of AI; (b) to strengthen the poultry sector infrastructure to better cope with serious disease outbreaks; and (c) to safeguard human health by improving public awareness and information. These objectives are the first phase of a longer-term program aimed at restructuring Vietnam's poultry sub-sector and strengthening the Veterinary Services system to deal with other potentially destructive new emerging infectious diseases.

2. Institutional and implementation arrangements

97. The Program will be implemented by the regular government structures, including the key technical ministries/agencies of Agriculture/Livestock and Health. Institutional and implementation arrangements will vary from country to country. They will be designed to ensure the efficient use and prompt disbursement of available resources through the respective loans/credits. National Steering Committees (NSC) for Avian Influenza Control or other committees established to address emergencies are proposed in each participating country for Program implementation to provide general policies and guidelines, in accordance with OIE/WHO standards and guidelines. The Committees are to comprise human health and veterinary agencies tasked to oversee AI control and eradication operations. They will also be responsible for reviewing annual work plans and ensure coordination and linkages across relevant agencies and international partners.

98. Although each country will need to adapt implementation/institutional arrangements to fit their specific situation, it is proposed that in countries where the Bank is financing either an agriculture/livestock or a health project, existing coordination structures can be entrusted with coordination of project activities, as well as fiduciary tasks of procurement and financial management. These structures will be strengthened by the recruitment of additional staff responsible for overall administration, procurement, and financial management of the Program. Agreement is to be reached at the individual country level to second to these coordinating structures one senior officer from relevant agriculture/animal health/human health departments. These officers are to be appointed as Project Coordinators in charge of the respective component for which their line agency is responsible. The Project Coordinators, together with the additional staff to be recruited for overall administration, procurement, and financial management of the Program, will become the Program Unit.

99. The Program Unit, under the overall direction of the Committee(s), will be responsible for coordinating with relevant government departments to guide and monitor project implementation at the central and local levels. The relevant government department will be responsible for the preparation of annual work programs and budgets as well as quarterly and annual project management reports. The Program Unit will be responsible for consolidating the annual work plans and budgets for submission to their relevant ministries and the Bank.

100. At the local level, implementation would be the direct responsibility of each regional/provincial agricultural/health authority. Small coordination units should be established at the local level comprising officials from health/agriculture to work under the supervision and guidance of the central Program Unit.

101. With respect to all cash transfers or other form of compensation, an adequate operational review should be in place to confirm the validity and legitimacy of the transfers. In addition, the external auditors should provide an opinion on the soundness of accounting, reporting, and internal controls in respect of cash compensation activities.

102. A generic Project Operational Manual (POM) is to be prepared to facilitate the management and implementation of the Program. The POM will be adjusted to meet the needs of individual countries.

3. Monitoring and evaluation of outcomes/results

103. Monitoring and evaluation (M&E) activities related to the project will be the responsibility of the coordinating structures, with the participation of the relevant implementing agencies in each participating country. Depending on the specific situation in each case, these activities could be carried out by the regular staff of the agencies (with technical assistance) or by contracting out these functions with specialized agencies/institutes when appropriate. For individual countries, detailed information on the M&E capacity of the relevant implementing agencies and their specific responsibilities for M&E under the project should be described in the project documents. Each individual operation will have its own set of objectives, targets, benchmarks, and key performance indicators (according to its particular situation and capabilities) to monitor progress and to report results in accordance with Bank's policies.

104. Monitoring project progress and the achievement of objectives will entail a process for reviewing continuously and systematically the various project implementation activities. The purpose of the M&E activities are to: (i) measure input, output and outcome indicators (see Annex 3); (ii) provide information regularly on progress toward achieving results and facilitating reporting to the government and IDA/IBRD; (iii) alert managers, both in government and IDA/IBRD, to actual or potential problems in implementation so that adjustments can be made; (iv) determine whether the relevant stakeholders are responding as expected and intended by the project; and (v) provide a process whereby the coordinating and executing agencies can reflect and improve on their performance.

105. The results of relevant M&E activities will be reflected in the quarterly and annual progress reports. The progress reports will cover the progress with the works, the institutional activities, training and studies, performance indicators, and financial management reports (FMR). A section of the progress reports will be devoted to issues identified during project implementation and the strategies and actions to be taken to resolve such issues that affect progress. The fourth quarterly report of each year will be an annual report, providing information of the progress during the past year.

106. Each country project M&E proposal should include a comprehensive Mid-Term Progress Report to be prepared approximately half-way during the implementation period. This report would support the Mid-Term Review exercise to be carried out by the Borrower and the Bank to discuss the experience accumulated during the first few years of implementation and to discuss possible adjustment to the project design, implementation schedule and expected outcomes/results. Similarly, a final Evaluation Report should be prepared after the project completion providing detailed information on the accumulated impacts achieved by the project as well as the main lessons learned that could serve for similar operations outside the country.

4. Sustainability

107. Critical to the sustainability of country projects under the proposed APL would be the continuous ownership of this initiative by the various stakeholders, coupled with strong political support and the availability of an adequate flow of financial resources to carry out project activities. In

addition, institutional sustainability would be ensured by: (i) strengthening of programs to maintain public awareness of the threat of avian influenza and other rapidly spreading infectious diseases; (ii) sustained surveillance and prevention and control activities, particularly in high risk regions; (iii) strengthened country capacity to manage at national and local levels the risk factors associated with the spread of avian influenza and other infectious diseases; and (iv) effectiveness of programs to control the spread of avian influenza from birds to the general population.

5. Critical risks and possible controversial aspects

1. RISK	Rating	Mitigation Measure
<p>From Outputs to Objective Decline in political commitment to Avian Influenza and the threat of a Global Influenza Pandemic and other infectious diseases as a national priority. Project implementing agencies do not have sufficient authority, leadership, and capacity to take leading role in Avian Influenza prevention and control.</p>	<p>H</p> <p>S</p>	<p>Continuing support for inter-country collaboration through information exchanges; and dialogue, and mobilization of international commitment and resources.</p> <p>Adequate implementation arrangements need to be in place as a pre-condition of Bank financing; careful monitoring of leadership and project management during project implementation; technical assistance and training.</p>
<p>Intervention activities not effective in containing the spread of Avian Influenza from birds to the human population.</p>	<p>S</p>	<p>Project activities would strengthen response capacity in selected priority areas in the short- and medium terms and lay the foundations for a broader-based strategy, including broad awareness and communication campaigns, which would be critical to containing the spread of a global influenza pandemic. Choosing well designed, cost-effective interventions. Interventions phased and carefully monitored, allowing for modifications and redesign as needed. Service delivery deconcentrated with the maximum use of local governments and civil society organizations. Good M&E to flag emerging issues</p>
<p>Inadequate or lack of multi-sectoral participation</p>	<p>M</p>	<p>National Steering Committees overseeing the program selected to be representative and given visibility; annual work programming transparent.</p>
<p>Low regional/provincial-level commitment means that strong central commitment does not translate into action on the ground.</p>	<p>S</p>	<p>Implementation mechanisms explicitly address the link between the required centralized decision making (the principle of ‘direct chain of command’) with the needed local-level implementation, communication strategies include local-level implementing actors as targets; capacity building includes periphery.</p>
<p>Lack of independent internal audit function</p>	<p>S</p>	<p>Ensure that robust Internal Audit function is independent from the operations and reports to the top management and the steering committee. In countries that lack an internal audit function, the</p>

		internal controls, design and implementation will be reviewed annually by independent operational auditors who would be conducting operational reviews.
From Components to Outputs		
Controlling the spread of the pandemic may expose the government to criticism for the curtailment of civil rights due to the adoption of quarantines and other related measures.	S	Project will support advocacy and coalition building to sensitize key groups including policy makers, the media, and religious leaders. This will be complemented by carefully designed mass communication campaigns to build support for the project among the wider population.
Lack of sufficient quantity of drugs and other medical inputs needed to address the needs of the general population during a pandemic	H	APL activities would be coordinated with efforts undertaken by other international organizations such as WHO, that has established an international antiviral stockpile with donations from the pharmaceutical industry (e.g., Roche's donation of three million treatment courses of the antiviral oseltamivir).
Inadequate institutional capacity to manage project and perform effectively in each country	S	Capacity building and institutional development as one of the project's key objectives
Financial resources not accessible in a timely manner, weak procurement management	S	Emphasis on deconcentration and partnerships. Rapid disbursement procedures and simplified public sector procurement within projects in accordance with OP for emergency operations.
Lack of timely and predictable access to expert advice and technical support	M	Project activities will be designed and implemented with leading multilateral agencies such as FAO and WHO; regional bodies such as the European Union; and bilateral and other donor organizations.
Low priority given to public accountability and transparency in program management	S	Publication of audit results and achievements; transparency in decision and resource allocation.
Inadequate capacity for planned surveillance, surveys and monitoring and evaluation	M	Technical assistance and partnership between local organizations and international institutions will be provided. M&E plan will include information on instruments for data collection, agencies responsible and a detailed timetable.
Overall Risk Rating:	S	

Risk Rating - H (High Risk), S (Substantial Risk), M (Modest Risk), N (Negligible or Low Risk)

Possible Controversial Aspects

108. The country projects would support the implementation of immediate term responses to a global influenza pandemic -- the classic “social distancing measures”-- such as quarantine, bans on mass gatherings, and travel restrictions that may be politically and socially controversial. This means that dialogue and compromises are needed among different stakeholders, backed by a well-designed communication strategy. In several countries of the world, the recent implementation of HIV/AIDS programs have given them experience in managing controversies of this type, when political leadership has been forthcoming. A high degree of political commitment to preventing and controlling the spread of infectious diseases such as a global influenza pandemic would be needed for managing controversies that will undoubtedly arise.

6. Main Loan/Credit/Grant Conditions

109. Most of the key conditions needed to minimize the risks to the country projects would be addressed by a country meeting the eligibility requirements for entering the Global APL. The particular circumstances facing individual member countries would determine the number and type of additional conditions that may be attached to the loan/credit/grant in question. In most cases, standard requirements covering organization and staffing of program units, management arrangements, provisions for procurement and financial management would be sufficient.

110. Minimum conditions of disbursements of loan/credits/grants would be: (i) the countries have prepared and the Bank has approved the Annual Action Plan for the first year; (ii) the Borrower has appointed key staff to lead the national program effort, and established a financial management system satisfactory to the Bank; and (iii) a project Operations Manual has been adopted by the country.

D. APPRAISAL SUMMARY

1. Economic and Financial Analyses (Annex 8)

111. There are two principal classes of economic costs associated with infectious diseases such as H5N1 Avian Influenza: (i) the consequences of sickness or death among humans or animals as a result of the disease and, (ii) the consequences associated with public and private efforts to prevent the spread of the disease or to treat it. In addition, there are two stages of AI that need to be considered: (a) the present stage with animal-to-animal or animal-to-human transmission and, (b) a potential future stage with human-to-human transmission and a possible global pandemic.

112. In the present stage, macroeconomic effects have been limited to the costs of poultry that have died from the disease or that have been culled, and from the costs to governments of containing the epidemic. In Asia, it is estimated that 140 million birds have been culled in the ten affected countries. In Vietnam the 44 million birds culled represent \$120 million or 0.3% of GDP.

113. Even if the macroeconomic effects have been relatively small to date, the impact on the poultry sector and associated input and distribution channels has been severe. For instance, in Vietnam, over 60% of the poorest households derive 6-7% of their incomes from this source indicating that the poor will be particularly at risk in terms of income losses from AI.

114. **Potential Human Pandemic Scenario.** Although there are very significant gaps in knowledge of the scope and features of a future pandemic, it is apparent that one main set of economic effects will derive from increased sickness and death among humans and the impact this will have on the potential

output of the global economy. In the Spanish Influenza pandemic (1918-19), 50 million people died – about 2.5% of the then global population of 1.8 billion.

115. The most direct impact would be through the impact of increased illness and mortality on the size and productivity of the world labor force. The loss of productivity as a result of illness which, even in normal influenza episodes, is estimated to be ten times as large as all other costs combined will be quite significant. (See Annex 7).

116. Another significant set of economic impact will result from the uncoordinated efforts of private individuals to avoid becoming infected or to survive the results of infection. The SARS outbreak of 2003 provides a good example. The number of deaths due to SARS was estimated at “only” 800 deaths and it resulted in economic losses of about 0.5% of annual GDP for the entire East Asia region, concentrated in the second quarter. If AI resulted in a human pandemic, a similar 2% loss in global GDP would equate to US\$800 billion.

117. The measures that people took resulted in a severe demand shock for services sectors such as tourism, mass transportation, retail sales, and increased business costs due to workplace absenteeism, disruption of production processes and shifts to more costly procedures. Prompt and transparent public information policy can reduce economic losses.

118. A last set of economic impacts are those associated with governments’ policy efforts to prevent the epidemic, contain it, and mitigate its harmful effects on the population. These policy actions can be oriented to the short, medium or long-term or, in spatial terms to the national, regional or global levels. All public policy measures entail economic costs and even though the economic benefits of preventing or containing a human pandemic are overwhelming, governments may still be daunted by the cost of various policy measures, especially when many of these measures are in the nature of global public goods that benefit many more than the citizens of that nation (See Annex 7 for more details).

2. Technical

119. **Animal Health.** The successful implementation of the program depends on a phased multi-disciplinary strategy based on a sound epidemiological approach to control HPAI outbreaks. This strategy has to take into consideration a broad range of epidemiological scenarios that exist in different poultry production systems in the affected countries and different levels of incidence (ranging from high incidence with variable flock outbreaks, through low frequency disease outbreaks with partial flock immunity, to sporadic outbreaks). A balanced combination of appropriate disease-control options, tailored to the specific characteristics of each country and its farming systems is essential for the achievement of the program objectives.

120. The implementation of the program and of each of the individual country projects raises important technical issues and presents substantial challenges. The main issues are:

- **The capacity of Veterinary Services.** Even though there is large variation among countries, in general Veterinary Services are inadequately equipped to deal with the scope, severity and rapid spread of the HPAI outbreaks. This is particularly evident in the areas of: (i) surveillance and diagnostic capacity needed for the early detection and reporting of an outbreak and to monitor the disease; (ii) rapid response needed to implement the control measures within and around the outbreaks; and (ii) essential research to understand how the disease develops in a particular situation.

- **Adequate regulatory and incentive framework.** This would include amendments to the veterinary law and compensation strategy aiming at good governance and transparent allocation of resources.
- **Bio-security measures.** These are essential to prevent the spread of the virus from infected premises (bio-containment) and to exclude the virus from uninfected locations (bio-exclusion); these have proven to be quite difficult to implement effectively. The lack of capacity and experience in practicing effective measures is one of the main reasons for the persistence of the disease and its spread in the world.
- **Epidemiological expertise.** The incorporation of epidemiological studies linked to disease control programs, to generate quantitative and geo-referenced data on infection and transmission dynamics, is another key success factor. Scarce epidemiological expertise limits the availability of modern methodologies and tools.
- **Harmonized disease information systems.** The importance of harmonized disease information systems, linked to disease surveillance and epidemiological programs is widely accepted. However, this effort needs to be substantially strengthened to support long-term control programs.
- **HPAI has become endemic in several countries.** Some genotypes of H5N1 strains might have adapted to “backyard” indigenous terrestrial poultry. This situation will increase the complexity of controlling the disease, particularly in the large section of backyard population in the affected countries, generally corresponding to small farmers located in geographically disperse areas.
- **Wildlife species and reservoirs are a source of HPAI.** Epidemiological studies suggest that some species of migratory wild birds have played a role in the transmission of H5N1 viruses to domestic poultry. There is major difficulty in applying bio-security measures aiming at avoiding the contact between the migratory and other wild birds and domestic poultry. The eradication of the virus to prevent HPAI infection may not be completely achievable in certain farming systems.
- **Poor coordination between public agencies and weak linkages with the private sector.** Less than efficient coordination between government ministries and agencies, as well as weak linkages with private sector actors have hampered long-term planning for infectious disease control. Given the zoonotic and transboundary nature of this disease, a well coordinated public-private response is essential.

121. **Human Health.** According to WHO, the current epidemiological situation of avian influenza corresponds to “a Pandemic Alert Period, phase 3, with human infection (s) with a new sub-type, but no human – to-human spread or at most, rare instances of spread to a close contact”. As differing from previous influenza pandemics that have taken the world by surprise, giving health services little time to prepare for the abrupt increases in cases and deaths that characterize these events, the present situation is markedly different for several reasons: (i) the world has been warned in advance; (ii) this advance warning has brought an unprecedented opportunity to prepare for a pandemic and develop ways to mitigate its effect; (iii) apart from stimulating national preparedness activities, the present situation has opened an unprecedented opportunity for international intervention aimed at delaying the emergence of a pandemic virus or forestalling its international spread.

122. As a result, the recent risk to human health posed by the avian influenza outbreaks led to the preparation of this technical framework to guide action against an increasing pandemic threat, while recognizing that there are areas that would still require further development and that specific actions to be included and supported under country projects would reflect the epidemiological conditions, institutional capacity, and needs and priorities of each country. In case a true human AI pandemic and

emergency were to develop, separate procedures may be decided upon, especially with regard to sole-source financing of anti-virals and AI vaccines.

123. Not knowing which influenza virus strain is going to cause the next pandemic makes planning for it very challenging. The likely impact of a pandemic depends upon characteristics of the virus such as its infectivity, attack rates in different ages (i.e., the proportion of the population infected for each age group) and the severity of disease it causes. As noted in section A of this document, the three pandemics of the 20th century demonstrate the variation in mortality, severity of illness and patterns of spread that can occur.

124. A critical element of pandemic planning, however, is ensuring that the building blocks are in place ahead of an actual pandemic threat. The two major strategies to be supported under the GPAI are technical sound as they would focus on: (i) containment measures to prevent transmission and spread of the virus through social distancing measures, judicious use of anti-viral medication, and strengthening of surveillance and public health laboratory systems to ensure that capacity and capability are in place to allow early detection of virus sub-types and rapid and accurate identification of emerging virus sub-types are in place, and (ii) maintenance of essential medical services and mobilization of international emergency health care and staffing for low-income and low-capacity situations, if there is explosive spread of the virus within the general population and containment is not longer possible coupled with preparedness for pandemic vaccination development and administration. In addition, support is considered for ensuring that appropriate decision making bodies are in place and have the necessary expertise and authority to make decisions quickly and effectively in the face of rapidly developing situations.

125. As such, the GPAI would be supporting in the public health field short-and long-term actions while ensuring that an appropriate balance is struck between the two. The proposed human health framework is fully consistent with WHO's recommendations. The aim of proposed interventions is to minimize the morbidity and mortality associated with the pandemic event.

3. Fiduciary

126. **Financial management** assessments will be undertaken in connection with each individual loan/credit/grant to be financed under the Program in accordance with the requirements of OP 10.02. For each project, the Bank requires the Borrower to maintain financial management arrangements that are acceptable to the Bank and that, as part of the overall arrangements that the Borrower has in place for implementing the operation, provide reasonable assurance that the proceeds of the loan/credit/grant are used for the purposes for which the loan/credit/grant was granted. Minimum internal controls, including internal audit, should be available prior to flow of funds. In this regard, the recipient country will need to engage the necessary expertise, systems and capacity, or outsource the functions to local consultants or other agencies in the country to work in the Program Unit on fiduciary issues, should this not be available at the outset. On this basis, appropriate financial management arrangements will be designed for each project, which would be consistent with Bank and regional specific requirements, and will be described fully in each PAD. When available, the existing country arrangements for fiduciary functions would be used.

127. **Procurement** assessments will be undertaken in connection with each individual loan to be financed under the Program, in accordance with the requirements of OP 11.00. Procurement of works, goods and services, if any, required for the activities to be financed from a loan/credit/grant under this APL shall be undertaken in accordance with the procedures set forth in the Bank "Guidelines – Procurement under IBRD Loans and IDA Credits" dated May 2004 (the Procurement Guidelines). Similarly, the selection and employment of consultants' services shall be governed by the "Guidelines:

Selection and Employment of Consultants by World Bank Borrowers" dated May 2004 (the Consultant Guidelines).

128. National Advance Purchase Agreements (NAPAs) for drugs and vaccines would be supported under the GPAI to address preparedness planning. It is expected that when all country plans and pandemic needs for existing drugs and future vaccines are evaluated, they will far exceed total global production capacity. Setting NAPAs in country strategies for limited amounts for essential purposes, would help to achieve equitable distribution by matching capacity with total pandemic demand. It is imperative for countries to develop credible forecasts identifying drug needs for emergency containment activities and future vaccine needs for prevention. A global mechanism that might pool credible demand into guaranteed purchases could be structured to provide the market motivation needed to increase investments in the development and production scale-up of needed drugs and vaccines. In this context, it would be important that countries begin as soon as possible to strengthen the delivery systems and containment policies, and increase the use of flu vaccines in the inter-pandemic years. Including NAPAs in all country strategies and developing global demand-pooling and purchasing mechanisms would help to ensure more equitable access by providing the incentives to expand capacity to meet forecasted demand. There is a crucial need, however, to separate national plans and NAPAs for current drugs from those for new vaccines. WHO will have an important role in evaluating the demand, particularly for current drug needs. This would ensure that shortfalls in some countries are balanced with supply capacity. As part of preparedness and enhancing the capacity of the manufacturers (vaccines and drugs), it may be necessary to have discussions with individual manufacturers holding copy rights and those that may need licensing authorization. The Bank, WHO and WTO will coordinate on this effort. In addition, measures should be adopted to expedite drug registration procedures at the country level and to guarantee good manufacturing practices to ensure the efficacy and safety of drugs and vaccines.

4. Environment and Social Aspects

Environmental assessment Environmental Category [B]

129. Activities under the proposed APL are not expected to generate any adverse environmental effect as a large part of the program is geared to support prevention activities. The country projects would overall have positive environmental and social impacts. The Program's environmental and social issues relate to two main activities:

130. **Building capacity for collection and testing of Avian Influenza virus.** The country project's investments in facilities, equipment, and training for laboratories will improve the effectiveness and safety over existing avian influenza handling and testing procedures by meeting international standards established by OIE. Whatever medical waste is generated in health care facilities will be managed using existing guidelines in the countries. The country projects would also support updating these guidelines, training of health care workers to manage medical waste following these guidelines, and the possible purchase of equipment for the proper handling and disposal of medical waste in participating facilities. These provisions would be included in the country project's Operational Manuals.

131. Overall, the country projects would assist the government entities to develop a strategy for managing future emerging and re-emerging zoonotic and infectious diseases outbreaks. As such, the projects would improve environmental and social safeguards, in two areas: (i) mainstreaming environmental safeguards into protocols and procedures for the culling and disposal of animals during an outbreak, in particular by adopting OIE standards in these areas, and improving bio-medical waste

management systems in health facilities and laboratories; and (ii) development of policies on compensation for poultry farmers affected by future outbreaks.

5. Safeguard Policies

Safeguard Policies Triggered by the Project	Yes	No
<u>Environmental Assessment (OP/BP/GP 4.01)</u>	[x]	[]
Natural Habitats (<u>OP/BP 4.04</u>)	[]	[x]
Pest Management (<u>OP 4.09</u>)	[]	[x]
Cultural Property (<u>OPN 11.03</u> , being revised as OP 4.11)	[]	[x]
Involuntary Resettlement (<u>OP/BP 4.12</u>)	[]	[x]
Indigenous Peoples (<u>OD 4.20</u> , being revised as OP 4.10)	[]	[x]
Forests (<u>OP/BP 4.36</u>)	[]	[x]
Safety of Dams (<u>OP/BP 4.37</u>)	[]	[x]
Projects in Disputed Areas (<u>OP/BP/GP 7.60</u>)	[]	[x]
Projects on International Waterways (<u>OP/BP/GP 7.50</u>)	[]	[x]

132. Most of the country-projects are expected to be B-category projects. As such, Environmental Management Plans would be prepared under each component and implemented with project support (see project components).

6. Policy Exceptions & Readiness

None.

Annex 1a: Key Facts (by CDC) about Avian Influenza (bird flu) and Avian Influenza A (H5N1) Virus

GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC PREPAREDNESS AND RESPONSE

What is Avian Influenza (bird flu)?

1. Bird flu is an infection caused by avian (bird) influenza (flu) viruses. These flu viruses occur naturally among birds. Wild birds worldwide carry the viruses in their intestines, but usually do not get sick from them. However, bird flu is very contagious among birds and can make some domesticated birds, including chickens, ducks, and turkeys, very sick and kill them.

Do bird flu viruses infect humans?

2. Bird flu viruses do not usually infect humans, but several cases of human infection with bird flu viruses have occurred since 1997.

What is an avian influenza A (H5N1) virus?

3. Influenza A (H5N1) virus – also called “H5N1 virus” – is an influenza A virus sub-type that occurs mainly in birds. It was first isolated from birds (terns) in South Africa in 1961. Like all bird flu viruses, H5N1 virus circulates among birds worldwide, is very contagious among birds, and can be deadly.

What is the H5N1 bird flu that has recently been reported in Asia?

4. Outbreaks of influenza H5N1 occurred among poultry in eight countries in Asia (Cambodia, China, Indonesia, Japan, Laos, South Korea, Thailand, and Vietnam) during late 2003 and early 2004. As that time, more than 100 million birds in the affected countries either died from the disease or were killed in order to try to control the outbreak. By March 2004, the outbreak was reported to be under control. Beginning in late June 2004, however, new deadly outbreaks of influenza H5N1 among poultry were reported by several countries in Asia (Cambodia, China, Indonesia, Malaysia {first time reports}, Thailand, and Vietnam). These outbreaks are ongoing. Human infections of influenza A (H5N1) have been reported in Cambodia, China, Indonesia, Laos PDR, Thailand, and Vietnam.

What is the risk to human from the H5N1 virus in Asia?

5. The H5N1 virus does not usually infect humans. In 1997, however, the first spread from a bird to a human was seen during an outbreak of bird flu in poultry in Hong Kong. The virus caused severe respiratory illness in 18 people, 6 of which died. Since then, there have been other cases of H5N1 infection among humans. Most recently, human cases of H5N1 infection have occurred in Thailand, Vietnam and Cambodia during large H5N1 outbreaks in poultry. The death rate for these reported cases has been about 50 percent.

6. So far, spread of H5N1 virus from person to person has not been conclusively proven and spread has clearly not continued beyond one person. However, because all influenza viruses have the ability to change, scientists are concerned that the H5N1 virus could one day be able to spread easily

from one person to another. Because these viruses do not commonly infect humans, there is little or no immune protection against them in the human population. If the H5N1 virus were able to infect people and spread easily from person to person, “**influenza pandemic**” (worldwide outbreak of disease) could begin. No one can predict if and when a pandemic might occur. However, experts from around the world are watching the H5N1 situation in Asia and elsewhere very closely and are preparing for the possibility that the virus may begin to spread from person to person.

How are bird flu viruses different from human flu viruses?

7. There are many different sub-types of type A flu viruses. These sub-types differ because of certain proteins on the surface of the flu A virus (hemagglutinin {HA} and neuraminidase {NA} proteins). There are 16 different HA sub-types and 9 different NA sub-types of flu A viruses. Many different combinations of HA and NA proteins are possible. Each combination is a different sub-type. All sub-types of flu A viruses can be found in birds. However, when one talks about “bird flu” viruses, one usually refers to flu A sub-types that continue to occur mainly in birds. They do not usually infect humans, even though we know they can do so. Human flu viruses are referred to as those sub-types that occur widely in humans. There are only three known sub-types of human flu viruses (H1N1, H1N2, and H3N2); it is likely that some genetic parts of current human flu A viruses came from birds originally. Flu A viruses are constantly changing, and they might adapt over time to infect and spread among humans.

What are the symptoms of bird flu in humans?

8. Symptoms of bird flu in humans have ranged from typical flu-like symptoms (fever, cough, sore throat and muscle aches) to eye infections, pneumonia, severe respiratory diseases (such as acute respiratory distress), and other severe and life-threatening complications. The symptoms of bird flu may depend on which virus caused the infection.

How does bird flu spread?

9. Infected birds shed flu virus in their saliva, nasal secretions, and feces. Susceptible birds become infected when they have contact with contaminated excretions or surfaces that are contaminated with excretions. It is believed that most causes of bird flu infection in humans have resulted from contact with infected poultry or contaminated surfaces.

What is the risk to humans from bird flu?

10. The risk from bird flu is generally low to most people because the viruses occur mainly among birds and do not usually infect humans. However, during an outbreak of bird flu among poultry (domesticated chickens, ducks, turkeys), there is a possible risk to people who have contact with infected birds or surfaces that have been contaminated with excretions from infected birds. The current outbreak of avian influenza A among poultry in Asia is an example of a bird flu outbreak that has caused human infections and deaths. In such situations, people should avoid contact with infected birds or contaminated surfaces, and should be careful when handling and cooking poultry.

How is infection with H5N1 virus in humans treated?

11. The H5N1 virus currently infecting birds in Asia that has caused human illness and death is resistant to amantadine and rimantadine, two antiviral medications commonly used for influenza. Two other antiviral medications, oseltamavir and zanamavir, would probably work to treat flu caused by the H5N1 virus, though studies still need to be done to prove that they work.

Is there a vaccine to protect humans from H5N1 virus?

12. There is currently no vaccine to protect humans against the H5N1 virus that is being seen in Asia. However, vaccine development efforts are underway. Research studies to test a vaccine to protect humans against H5N1 virus began in April 2005. Researchers are also working on a vaccine against H9N2, another bird flu virus sub-type.

Annex 1b: Guidance Note to World Bank Country Teams on responding to Avian Influenza
GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC
PREPAREDNESS AND RESPONSE

A. Background

1. Recent increases in the number of known cases of avian influenza (AI) transmission have raised concerns over the potential emergence of a pandemic, which could have devastating effects on human health, animal health, and human livelihoods. At the same time, it is important to emphasize that there are many uncertainties about whether and when a pandemic might occur as well as about its potential impact. Nonetheless, the likely severity of this threat in terms of loss of lives and livelihoods means the Bank must take steps to anticipate its eventuality.

2. It is also clear that an adequate response to AI must entail collaboration between partners across sectors and donors/agencies. Technical agencies such as WHO, FAO and OIE have a clear mandate and a comparative advantage to lead technical efforts in the areas of human and animal health, respectively. Planning and implementation of an adequate response will require nonetheless the coordinated involvement of many other partners and other areas of specialization.

B. Instructions for Action at the Country Level

The following **general principles** should be borne in mind:

- a) It is critical that the discussions and agreements reached be based on **common objectives across various sectors**, with emphasis on agriculture and health. The lead technical agencies in animal and human health should play a lead role in the technical dialogue, but it is equally important that this result in an integrated, coordinated set of plans that draw upon the comparative advantages of these agencies while reinforcing others' efforts. It will also be important that senior representatives from ministries of finance, planning and home affairs/interior be involved as they will have critical roles in decision making on important dimensions of a national response.
 - b) The most immediate objective should be to, where applicable, immediately contain or control the spread of an outbreak at the source (both animal and health agencies must be involved to prevent/limit animal to animal, animal to human, and human to human transmission).
 - c) The response by countries will necessarily involve both short- and long-term actions. Work needs to go on in parallel on both fronts and will involve determining priorities in each.
3. Bearing the above principles in mind, country teams are asked to respond to the questions set out in Sections A-F below.

Key Areas for Assessment of the Country's Overall Preparedness

In *planning and organizing the overall response* to the threat of a pandemic, what is the situation with regard to:

A.1 *Current Status of AI in the Country*

- Is there a known and recorded outbreak? What is its nature and extent? Is there evidence of cross-breed infection and animal to human transmission?
- To what extent are senior officials aware of the potential risks of AI and amenable to working with external partners to address it?

A.2 *National Strategic Plan for Addressing AI*

- Is there a National Strategic Action or Preparedness Plan (“the plan”) in place? If not, are steps being taken to prepare such a plan? When will it be ready?
- Does the plan clearly articulate common objectives across both the animal and human health sectors for responding to the epidemic (as compared to a list of unconnected activities in each sector)?
 - If so, what are they?
 - Are they appropriate from a technical perspective?
 - Are they feasible from an implementation perspective? and
 - Are short- and long-term objectives differentiated?
- Is the plan based on what is known about the likely course of the epidemic?
- Is it genuinely strategic with respect to the identification, coordination and sequencing of activities?
- To what extent does action on the plan depend on very senior political intervention, and how likely is it that senior politicians will be willing to be involved?
- Have communication plans been developed for providing essential messages to key actors involved as well as the general population on the nature of the epidemic and the way the country plans to respond (is the public aware of the AI problem and do people have some knowledge of how to protect themselves?)

A.3 *Institutional Arrangements, including Coordination Mechanisms*

- Have these been established?
- If not, what are the main impediments? When will these mechanisms be in place?
- If so, what are they? For example:
 - Is there a national coordinating body for AI?
 - Has a leading person or agency been identified with mandated TOR?
 - Have roles and responsibilities been assigned to ensure that relevant parties stay up to date
- To what extent do institutional arrangements being acted upon depend on senior political intervention, and how likely is it that senior politicians will be willing to be involved?

- Is there a donor coordination body (e.g., Working Group) on AI? Does it interact with the national coordinating body?

A.4 Within *animal health*, what plans have been made or activities already initiated for:

- **Surveillance** of chickens, ducks, and other fowl? This includes animal health monitoring, surveys, laboratory testing, and data management and reporting.
- With respect to the functioning of the surveillance system:
 - What surveillance is in place now? Does it need to be differentiated by industry segment? In what way? How can that be accomplished?
 - Is the system functioning? If not, why not? What is required to improve the system for surveillance of AI?
 - How long does it take for information to get from the field to the place where decisions have to be taken? For a decision to be taken? For action to be taken following a decision? Is this adequate to function as an Early Warning System? Are systems in place for managing and sharing this information?
 - If there are problems, how might the system be improved in the short- and long-term and in terms of coordination between animal and human health?
- **Control measures.** What plans are there or initiatives taken with respect to:
 - Culling of infected flocks, and compensation arrangements (including for small-scale, vulnerable producers?)
 - Vaccination of at-risk flocks?
 - Other measures, e.g., bio-security protocols, ring-fencing, change of high risk practices in industrial segments
 - What policies are in place to ensure the implementation and monitoring of the relative efficiency and efficacy of these control measures? Are they adequate? If not, why not? What needs to be done to improve the situation? Are others needed?
 - Is more than one ministry involved? Are there adequate coordination mechanisms in place, including clearly defined roles and a mechanism for collecting and sharing information?

A.5 Within *human health*, what plans have been made or activities initiated for:

- **Surveillance** of human cases? This includes case reporting, contact tracing and monitoring, laboratory testing, and data management and reporting.
 - What surveillance is in place now?
 - Is the system functioning? If not, why not? What is required to improve the system for surveillance of AI?
 - How long does it take for information to get from the field to the place where decisions have to be taken? For a decision to be taken? For action to be taken following a decision? Is this adequate to function as an Early Warning System? Are systems and channels in place for managing and sharing this information?
 - If there are problems, how might the system be improved in the short- and long-term and in terms of coordination between animal and human health?

- **Control measures.** What plans have been made or activities initiated for:
 - “Social distancing measures”, e.g., quarantine of infected and exposed individuals and the closing of markets and schools, border control measures, etc. too minimize human-to-human transmission?
 - What systems and plans are in place for sharing this information among concerned government offices, development partners, and the public? Are these strategies and channels for communication adequate?
 - Purchase/stock-piling of anti-virals (oseltamivir or Tamiflu®)?
 - Use of anti-virals in case of human-to-human transmission, in particular which population groups will be targeted (exposed people, groups such as health care workers or police, etc.)?
 - Acquisition and use of vaccines, when and if available?
 - Specific safety measures for high-risk populations – e.g. hospital staff, poultry industry staff
 - What policies are in place to ensure the implementation and monitoring of the relative efficiency of these control measures? Are they adequate? If not, why not? What needs to be done to improve the situation? Are others needed?
 - Is more than one ministry involved? Are there adequate coordination mechanisms in place?

B. Assessment of Effectiveness of Activities to Date

4. With respect to the sets of activities listed under point A above, have there been reviews or assessments by government or donors of the measures already undertaken? If so, with what results?

C. Inventory of Development Partner Activities

5. A number of donors have already initiated efforts to assess needs and provide support in high priority AI countries. For example, U.S. government agencies recently completed an assessment of preparedness for AI in Vietnam, Cambodia, Laos PDR and Thailand. The Bank has agreed to put together a compendium of assessments, studies, etc. completed in the countries in the region for the purposes of avoiding duplication and building a knowledge base on individual countries. Country teams are therefore requested to include a section in their reports that contains descriptions of past and current activities undertaken by partners.

D. Resource Implications of Getting Prepared

6. Some countries such as Vietnam are already spending significant resources to combat the epidemic. Others will only have begun efforts to prepare for a possible epidemic. Nonetheless it will be important to begin to think about likely country-specific resource requirements. Please describe the extent to which efforts have been made to inventory potential needs and resource requirements. Has the government allocated a budget for AI? Are donor funds already committed for this purpose? It would also be helpful to have suggestions on how specific assistance programs might be structured.

E. Regional and Global Public Goods Concerns

7. There are a number of issues at the global level that will be critical in the event of a pandemic. Market failures with respect to the supply of antivirals and vaccines are two examples. There are similar issues with respect to the efficacy and efficiency of vaccines for poultry as well as the efficacy

of control measures for avian epidemics in varying settings. It would be helpful if country team reports could flag any regional or global issues that will be critical to their country's response. In addition to indicating what these are, suggestions as to who might be best placed to address them would be helpful.

F. Guidance on Economic Analysis

General Principles

- a) The economic impact of infectious diseases is sometimes usefully divided into three stages: (i) the cost of increased illness and death among humans (and animals). (ii) the cost of the coping strategies adopted by the private and public sectors in order to avoid or reduce illness and death. (In cost-benefit analysis terms, the benefits of the coping strategies are the illness and death that are averted). (iii) the net cost to the national economy and to welfare of the disease and the coping strategies together. There are also likely to be significant distributional and social impacts, as well as the potential for increased political stress or deterioration in security conditions.
- b) With avian influenza it may be useful to consider two levels of potential economic costs, associated with potential stages of the disease: (a) the present stage, with animal-to-animal and animal-to-human transmission, which, however, as it continues and expands, also increases the probability of: (b) human-to-human transmission and a possible global pandemic with enormously greater costs. There is therefore an urgent priority on stopping or curbing the disease "at source", in the agricultural sector, during its present stage. The benefits of doing so include those of preventing or delaying the start of a human epidemic.

Recent Situation

8. For now, with the principal transmission of the virus occurring among birds, the major economic impacts are occurring in rural areas, mainly affecting agricultural and industrial poultry producers.

Economic costs that need to be considered include:

- Death of poultry due to the disease and to culling, with losses affecting not only farmers but also upstream and downstream sectors such as poultry traders, feed mills, breeding farms etc. In Vietnam some 17% of birds were culled. (These costs could be partially offset by farmers' efforts to substitute into other livestock or production).
- Costs to the government of containing the disease outbreak, including hiring workers for culling and cleanup, surveillance and diagnosis, hire of transportation and purchase of imported materials, medications, vaccines etc. In Vietnam the cost from these two sources of the January-March 2004 avian flu outbreak alone was estimated by Bank staff at around VND 1800 billion (US\$120 million) or 0.3 percent of GDP.
- Secondary effects if, for example, there is a fall in tourism. This does not appear to have occurred so far, with tourist numbers to Vietnam continuing to show strong growth in 2004 and so far in 2005. But this could change since it only recently that global media have started prominent reporting on avian influenza.

Distributional and social impacts also need to be evaluated. Relevant factors include:

- The structure of the poultry industry and the relative importance of smallholder households versus large scale industrial production. In the former case many households will experience losses, but the effect may be cushioned by their having other sources of income. (Nevertheless, poor households may still be hurt more if, as in Vietnam, they derive more of their income from poultry or if poultry losses force them below key subsistence margins). With industrial production, the

impact may be more concentrated on a smaller number of people, such as workers who suffer unemployment and capitalists who suffer losses and possible bankruptcy.

- Distributional consequences of higher prices paid by consumer for poultry, eggs and their substitutes.
- The nature of the government's policy (or lack of policy) for compensation of poultry owners whose birds are culled.

Potential Human Pandemic Scenario

There are great uncertainties about the timing and scope of future pandemic. Given the epidemiology of the virus, a pandemic would probably last around two years. But, given that the Spanish flu of 1918-19 killed 50-100 million, the potential costs could also be huge. For the moment we only sketch some main channels of impact that would need to be assessed:

- *Effects of sickness and mortality on potential output.* The most direct economic impact would be that on potential output through reduction in the size and productivity of the labor force due to illness and death. The effect of disease on the size of the labor force would depend on how it affected different age groups. The impact of a smaller labor force on world output might be softened by the availability of unemployed labor, although replacement workers would likely be less productive than those who died. There would also be a general decline in labor productivity due to illness among the labor force at large. Other longer term impacts would play out as the increased costs of preventing and treating disease reduced savings and investment, through adverse impacts on the upbringing and education of orphaned or neglected children, and through changes in fertility decisions.
- *Private preventive responses to an epidemic.* Another set of economic impacts results from the uncoordinated efforts of private individuals to avoid becoming infected. During SARS people tried to minimize face-to-face interactions, resulting in a severe demand shock for services sectors such as tourism, mass transportation, retail sales, hotels and restaurants, as well as a supply shock due to workplace absenteeism, disruption of production processes and shifts to more costly procedures. This led to an economic loss of perhaps 2% of East Asian regional GDP in the second quarter of 2003, even though only about 800 people died from SARS. It is fair to assume the immediate shock from private panic and preventive actions during a flu epidemic would be even larger. A key policy question for government is how to win the confidence of the population and minimize panic and disruption. Here an honest, transparent public information policy is likely to be critical.
- *Public policy responses to epidemic threats.* A final set of economic impacts are the costs associated with the policy efforts of the government to prevent the start of an epidemic, to contain it, and to mitigate its harmful effects. Other parts of this Guidance outline some of these measures, such as social distance measures combined with selective use of anti-virals and vaccines. Even though the benefits of containing an influenza pandemic are overwhelming, governments may still be daunted by the social, political and economic costs of various policy measures, especially when these measures are in the nature of public goods that benefit many more than just the people in an affected region, or the citizens of that nation. Careful analysis of different incentive schemes to overcome various collective action problems could make a large contribution, for examples ways to foster greater global anti-viral and vaccine production in efficient, cost-effective ways, together with ways to make available emergency stocks of these medications to affected countries at a reasonable cost.

Annex 1c: Summary of Conditions for Country Program Financing

**GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC
PREPAREDNESS AND RESPONSE**

1. Under the GPAI, individual countries would be considered for individual loans, credits and grants (according to Bank eligibility criteria). The specific country projects would be prepared and appraised according to the Bank's regular procedures for loans/credits/grants that would be appropriate considering the degree of urgency of the needs to be addressed (Emergency Reconstruction Loans – ERL and Sector Investment Loans – SIL). Regular assessments of country creditworthiness, co-financing capacity, procurement, financial management risks and mitigation measures, and safeguards issues would apply.
2. The design of each country project would be appropriate for the risk and situation faced by the country in question. Countries would be guided by the broad sets of activities described in this document in developing their individual programs/projects. These would be expected to meet Bank's "quality at entry" standards. Bank safeguard policies would also be applied in each case.
3. The following table summarizes expectations concerning the types of projects and the conditions that would allow the Bank to appraise a country proposal. The Bank would encourage countries to make their proposals following a simple format, using "templates" that have been developed for this purpose. Please refer to Annex 1d.

Summary of Conditions for Country Program Financing

	Country With Human Outbreak (“Outbreak Case”)	Country at Imminent Risk (“Imminent Risk Case”)	Country at Strategic Risk (Strategic Risk Case)
Definition	Country with diagnosed cases of animal and human infections	Country with diagnosed cases of animal infections, not human	Country with no currently diagnosed cases, but with credible cause for concern
Typical Project Objective	Apply systems for prevention and control of animal vectors and containment and control of human infections	Apply systems for containing and eradicating animal vectors, and preventing transmission of infection to humans	Apply systems for preventing trans-border transmission, controlling risks of infection in animal populations and in humans
Typical World Bank Lending Regime	ERL, OP 8.50	ERL, OP 8.50	SIL, SML, OP 10.00
Eligibility for Appraisal of Country Program Financing			
1. Risk Assessment	Should document the current scope and scale of infections, factors affecting transmission, and probable direction of the epidemic if left unchecked	As with “Outbreak Case”, with additional documentation on economic and financial costs of further outbreak,	Should document factors creating the risk and their relative importance, the economic and/or financial cost of outbreak and the distribution of these costs
2. Operational Strategy and Results	Confirmation of adherence to relevant prevention and control recommendations of OIE, FAO and WHO; time-bound expectations for containment and eradication; monitorable expectations of organizational performance.	As with “Outbreak Case”, with further elaboration of prevention strategy	Statement of prevention strategy consistent with OIE, FAO and WHO recommendations, and monitorable expectations of organizational performance
3. Program Components and Costs	Relevant components selected from GPAI options, <i>with emphasis on</i> animal health response and containment, and human health containment and treatment; communications, reparations; monitoring	Relevant components selected from GPAI options, <i>with emphasis on</i> animal health response and containment including reparations; human protection, public health planning, monitoring and	Relevant component selected from GPAI options <i>with emphasis on</i> risk mitigation, public information and awareness, industrial restructuring, and longer term policy and regulatory development. Costing would be detailed by component and inputs

	and evaluation and project management. Additional resources for further planning for follow-on investments in GPAI options in the medium and longer term would be included to assure sustainability. An appropriate budget envelope with approximate component and input costs may be presented	evaluation. In addition focus would be placed on components aimed at managing medium and longer term risks to animal and human populations. Approximate costs of components and inputs may be presented, with an estimated medium term budget envelope.	
4. National Leadership and Management Arrangements	Description of current response management arrangements, and proposal for modifications to accommodate external financing (appointing a “program manager”).	As for the “Outbreak Case”, with additional proposals for institutional development aimed at mainstreaming risk management	Identification of national risk management focal point (and program manager), and proposals for institutional development aimed at mainstreaming risk management
5. Diagnostic, Surveillance and Evaluation Systems	Description of current diagnostic, surveillance and evaluation systems and proposed improvements to conform to OIE and WHO recommendations (as relevant)	As for the “Outbreak Case”, with additional proposal for further development of systems aimed at mainstreaming.	Description of current structure and capacity and proposal applying as relevant, OIE and WHO recommendations, aimed at mainstreaming this function.
6. Fiduciary Arrangements	Identification of fiscal agent staffed and structured to meet financial management and procurement requirements for external financing	As for “Outbreak Case” with additional proposal for mainstreaming fiduciary arrangements	Proposal for structuring financial management and procurement within public sector administration
Preparation Support	May be supported by Donor, OIE, FAO, WHO and World Bank Staff Technical Assistance	May be supported through Donor, OIE, FAO, WHO and World Bank Staff Technical Assistance and external grant sources (such as PHRD Grants)	Supported through regularly available project preparation facilities, and through external preparation grants (such as PHRD Grants)

Annex 1d: Template and guidelines for the Country Technical Annex

GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC PREPAREDNESS AND RESPONSE

A. Overview

1. Under the GPAI Program, each individual country project would be appraised by the Bank, based on the application presented by the participating country. The country would use the template presented in Annex 1, as its basic preparation document and draw on the materials presented in the original PAD for the GPAI Program to support many of its proposals (overall development objectives, contribution to the GPAI development objectives, components, safeguards, fiduciary arrangements, implementation arrangements) to complete this preparation.
2. The Bank appraisal review would follow the general Guidelines for Project Appraisal as currently applied under Emergency Reconstruction Lending (ERL, OP 8.50) and Investment Lending (EP OP 10:00). The appraisal results will be summarized in a Technical Annex, which should focus on key points. The main text of this Technical Annex would be written as a coherent “executive summary” and it would be limited in length to 10-12 pages of 12 point single space text.

B. Technical Annex -- Table of Contents

Summary Cover Sheet

A. BACKGROUND AND STRATEGY.

1. Country and sector background
2. Country overall impact assessment (or damage assessment for already affected countries).
3. Country strategy in the context of GPAI.
4. Country response to the AI emergency
5. Country eligibility under GPAI.

B. BANK RESPONSE AND STRATEGY

1. International Support to the Avian Influenza Emergency in the country.
2. Response gaps and Bank’s assistance.
3. Rationale for Bank involvement.
4. Lessons learned

C. DETAILED PROJECT DESCRIPTION

1. Project development objectives and key indicators.
2. Project components.
3. Project costs and financing.
4. Studies and Technical Assistance required.

D. IMPLEMENTATION ARRANGEMENTS

1. Overall project organization and management.
2. Institutional arrangements for implementation.
3. Financial management and procurement.
4. Retroactive financing.

5. Environmental and social aspects.
6. Monitoring and evaluation of outcomes/results.
7. Loan/credit conditions and covenants.
8. Policy Exceptions and Readiness.

E. FINANCIAL AND ECONOMIC JUSTIFICATION

1. Economic and financial analyses.
2. Technical analysis.
3. Critical risks and possible controversial aspects.

F. PROJECT BENEFITS AND RISKS

1. Project Benefits
2. Project Risks

G. AGREED ACTION PLAN (if needed).

APPENDIXES:

- Appendix 1: International and Country Background.
- Appendix 2: Country Eligibility under GPAI.
- Appendix 3: Detailed Project Description.
- Appendix 4: Project Coordination and Implementation Arrangements.
- Appendix 5: Project Costs and Financing.
- Appendix 6: Procurement Arrangements.
- Appendix 7: Financial Management and Disbursement Arrangements.
- Appendix 8: Environmental and Social Issues.
- Appendix 9: Economic Impact.
- Appendix 10: Monitoring and Evaluation.

C. Guidance and Structure for Completing the Technical Annex for GPAI financing

3. The following template would be completed with a word count equivalent of 10 pages in 12 point, single-spaced text (excluding the Cover Summary Sheet).
4. The middle column of the table below gives points to be covered in each section. Unlike a traditional PAD, the statements represent **a mandatory checklist**.

Appraisal Area	Focus of Appraisal	Main References
A. BACKGROUND AND STRATEGY		For all sections, ensure consistency with Project's MOP and with GPAI PAD.
1. Country and Sector Background	Analysis of Avian Influenza in the country; sectors involved; historical description of outbreaks coverage; current phases of the disease; and brief outlook.	Country's application Appendix 1
2. Country overall impact assessment	Assessment of socio-economic impact of the disease (current and forecast).	Country's application Appendix 1
3. Country strategy in the context of GPAI	Description of the country strategy in responding to the AI threat, and consistency with the global/regional strategy as supported by the international/regional agencies; and relationship with GPAI.	Country's application Appendix 1
4. Country response to the Avian Influenza Emergency	Description and costing of the specific actions taken and measures that have been implemented so far in response to the AI emergency, including institutional mechanism and resources mobilized.	Country's application Appendix 1
5. Country eligibility under GPAI	Justification of country's compliance with the GPAI Program eligibility criteria and triggers.	Appendix 2
B. BANK RESPONSE AND STRATEGY		
1. International support to the Avian Influenza in the country	Description of assistance provided (and committed) to the country to prevent, mitigate and control AI.	Appendix 1
2. Response gaps and Bank assistance	Analysis of gaps in the assistance provided and the country's priority unmet demands/needs. Description of Bank's objectives and strategy to respond to the emergency (including all mechanisms used).	Appendix 1
3. Rationale for Bank involvement	Justification of the value added of proposed project financed by the Bank	Appendix 1
4. Lessons learned	Presentation of lessons learned by the Bank in similar emergency operations (or other international agencies' operations), and which have been taken into account in the design of the proposed project.	

C. DETAILED PROJECT DESCRIPTION		
1. Project development objective and key indicators	Assessment of project development objectives and outcomes; their realism, relevance and efficiency; and main monitorable indicators for measuring results and impacts.	Appendix 3
2. Project components	Description of components; and Assessment of their relevance in producing the project outcomes in the context of the overall recovery program.	Appendix 3
3. Project costs and financing	Summary of project costs by category of investment; and project financing by source and year. Identification of possible financing gaps.	Appendix 5
4. Studies and technical assistance needed	Description of main studies and technical assistance required for prevention, mitigation or control/eradication (including duration, TOR and estimated costs).	Appendixes 3 and 5
C. IMPLEMENTATION ARRANGEMENTS		
1. Overall project organization and management	Description of the management structure for coordination of the country's multi-sectoral efforts and its relationship with international/regional agencies and programs; Assessment of the adequacy of these arrangements to ensure effective coordination within the country as well as internationally.	Appendix 4
2. Institutional arrangements for implementation	Description of institutional arrangements for each sector, including specific responsibilities for management, administration, and M&E; Confirmation of adequate institutional capacity, and identification of required institutional support assistance; Assessment of Project's implementation plan.	Appendix 4
3. Financial management and procurement	Specific description of financial management aspects, including responsibilities, flow of funds,	Appendix 6 and 7

	accounting systems and auditing arrangements.	
4. Retroactive financing	Summary the agreements with the Borrower on specific arrangements for retroactive financing (types of investments, period of expenditures, procurement procedures, and total amount authorized).	Appendix 7
5. Environmental and social aspects	Analysis of environmental and social aspects, studies prepared, actions pending and main issues for implementation.	Appendix 8
6. Monitoring and evaluation of outcomes/results	Confirmation that monitoring and evaluation outlined under the GPAI are operational (noting modifications required for the specific project) Assessment of specific results framework proposed for the project	Appendix 10
7. Loan conditions and covenants.	Description of main loan conditions for Board presentation, effectiveness or disbursement, as well as project specific covenants for implementation.	Minutes of Negotiations/Loan Agreement
8. Policy exceptions and readiness	Statement of special conditions that may merit policy exceptions; and general readiness of implementation.	Minutes of Negotiations/Loan Agreement
D. FINANCIAL AND ECONOMIC ANALYSIS		
1. Economic and financial analysis	Assessment of cost benefit analysis; economic and financial returns of the project; or cost-effectiveness of actions proposed (depending on the data available).	Appendix 9
2. Technical analysis	Assessment of main technical issues for project implementation and technical sustainability.	
3. Critical risks and possible controversial issues	Assessment of risk/rewards and mitigation measures.	
E. AGREED ACTION PLAN		
	Summary of principal agreements reached, actions pending, and the key activities/indicators that would serve as monitoring devices for the country and the Bank (benchmarks).	Minutes of Negotiations/Loan Agreement

APPENDIXES:		
Appendix 1: Country eligibility under GPAI		
Appendix 2: Detailed project description		
Appendix 3: Overall project coordination and implementation arrangements		
Appendix 4: Project costs and financing		
Appendix 5: Procurement arrangements		
Appendix 6: Financial management and disbursement arrangements		
Appendix 7: Environmental and social issues		
Appendix 8: Economic impact		
Appendix 9: Monitoring and evaluation		
Appendix 10: Global and regional coordination		

Annex 2a: Summary of Strategies of the Food and Agriculture Organization (FAO)'s and the World Organization for Animal Health (OIE)'s Global Strategy for the Progressive Control of Highly Pathogenic Avian Influenza (HPAI)

GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC PREPAREDNESS AND RESPONSE

1. **Vision and goal.** The long-term vision of the strategy is to minimize the global threat and risk of HPAI in humans and domestic poultry, through progressive control and eradication of HPAI, particularly that caused by H5B1 virus, from terrestrial domestic poultry in Asia. Achieving this goal will diminish the global threat of a pandemic, stabilize poultry production, enhance a robust regional and international trade in poultry and poultry products, increase human and food safety, and improve the livelihoods of the rural poor.
2. **A phased approach.** The global strategy will be implemented over three time frames: immediate to short (1-3 years), short to medium (4-6 years) and medium to long term (7-10 years). During this period the spread of HPAI, mainly of the H5N1 strain, will have been progressively controlled in domestic poultry of all infected countries of Asia, and prevented from affecting those Asian countries not currently infected, but at high risk.
3. The immediate to short-term objective is to reduce the risk to humans by preventing further spread of HPAI in those countries that are currently infected by H5N1.
4. Over the medium to long-term (7-10 years), a more focused approach to HPAI will be mounted to progressively eradicate the disease from the remaining compartments of infected domestic terrestrial poultry in the region. The medium-to-long term strategy will consider all control measures, including vaccination, zoning and compartmentalization as defined in the OIE Terrestrial Animal Health Code. For the long-term success of this strategy, restructuring of the poultry sectors in the region will need to be seriously considered.
5. To prevent the threat of HPAI from spreading to avian influenza-free countries, the long-term strategy supports the development of active surveillance programs and emergency preparedness plans for non-infected, at risk countries. The application of OIE standards relating to the international trade of poultry and poultry products will further assist in preventing the spread of HPAI virus across continents.
6. **Capacity building.** Inadequate capacity in many countries is the principal limiting factor for effectively and quickly stamping out and controlling infectious diseases. Thus, the strategy suggests building a strong and sustainable human and physical resource capacity in the countries, to respond in a more effective and timely manner in stamping out not only HPAI outbreaks, but also other newly-emerging infectious zoonotic and trans-boundary animal diseases. Capacity building will be wide ranging and include all aspects of disease control as well as policy development and socio-economic impact analysis.
7. **Strategic research.** The global strategy recognizes that the dynamics of the current rapid spread and persistence of HPAI remain unclear. Therefore, the strategy will facilitate strategic research to investigate the epidemiology of avian influenza, evaluate the efficacy of vaccines in domestic ducks

to reduce the virus shedding in domestic duck reservoirs, and work in close collaboration with regional and international advanced research institutions to promote the development of improved vaccines and rapid diagnostic tests. Risk analysis of various poultry production systems and along marketing chains will be carried out to better target effective disease control.

8. **Implementation.** Implementation will be at the national, regional and international levels. At the national level, well-defined country specific projects will be formulated, which will be underpinned by the formation of sub-regional HPAI support units. Through these units, sub-regional disease diagnosis and surveillance and socio-economic and policy analysis networks will be established. These sub-regional networks will provide the lead in the development of harmonized technical standards and regional policies related to the management of live animal movement, compensation plans, capacity building, disease reporting requirements and long term planning to restructure poultry sectors.

9. At the international level, coordination of the national programs and sub-regional networks will be under the umbrella of GF-TADs (global framework for the control of trans-boundary animal diseases), a joint FAO/OIE initiative. The international coordination will provide technical backstopping to the sub-regional networks and national programs, promote international cooperation, and mobilize and coordinate resources for HPAI control.

10. **Partners.** The main partners in implementation of the strategy will be infected and non-infected at risk-countries, and regional organizations, all of which are committed to controlling trans-boundary animal and zoonotic diseases. Given the zoonotic nature of the HPAI, and the complex interface between farming systems, livestock trade, food safety and public health, a strong international partnership among FAO, OIE and WHO will be continued. A number of other partners will be involved, important among these would be the private sector, NGOs, and regional national agriculture extensions systems (NARES).

11. **Resources.** The implementation of the strategy will require funding to support the national, regional and international HPAI control programs as outlined above.

Framework for Implementation

12. A Framework for Implementation has been developed by FAO/OIE, promoting national, regional, and international initiatives. It includes the following:

National initiatives:

- Development of a National Strategy for each country specific to its own conditions. It would address farming systems, presence/absence of ducks, presence of human cases or not, trade orientation, implementation capacity, and wildlife migration patterns;
- Preparation of contingency and emergency preparedness plans;
- Development of economic impact and policy frameworks;
- Prevention of avian influenza to non-infected at-risk countries through awareness, reporting, and early detection; and
- Improvement in epidemiological information on source of infection and transmission dynamics in farming system and marketplaces.

Regional initiatives:

- Standardization of diagnosis and reporting techniques among countries;

- Sharing of disease information between countries;
- Development of a regulatory framework for management of animal movements; and
- Promotion of adherence to OIE guidelines to facilitate regional trade.

Global initiatives:

- Strengthening of partnerships (FAO, OIE, WHO, UNDP, donors);
- Support for global networks (OIE Global Service Center supported by WB/DGF and donors);
- Support for sub-regional networks -- OIE/FAO epidemiology collaborating centers and Avian Influenza Network (OFFLU);
- Further development of control strategies for trans-boundary animal diseases (utilizing the GF-TADs mechanism);
- Development of a Global Early Warning System (FOA/OIE/WHO);
- Coordination of research on improved tools for avian influenza control;
- Provision of global vision for avian influenza control; and
- Mobilization of resources through donor liaison and advocacy.

Annex 2b: Summary of the World Health Organization (WHO) Strategy

GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC PREPAREDNESS AND RESPONSE

Responding to the Avian Influenza Pandemic Threat: WHO Recommended Strategic Actions

1. As the present situation continues to evolve towards a pandemic, countries, the international community, and WHO have several phase-wise opportunities to intervene, moving from a pre-pandemic situation, through emergence of a pandemic virus, to declaration of a pandemic and its subsequent spread.
2. The objectives and activities of WHO's recommended strategic plan for countries correspond to the opportunities to intervene and are structured in the following three phases:

Phase - Pre-Pandemic:

(i) *Reduce opportunities for human infection.* An immediate priority is to halt spread in poultry to reduce human exposure to the virus. More intensive collaboration is needed between the animal and health sectors. Communication activities targeting stakeholders, particularly rural poultry holders, should be strengthened. Workers carrying out the culling of poultry must be protected against infection by clothing and equipment. The strategic actions are: support the FAO/OIE's control strategy; intensify collaboration between the animal and public health sectors; strengthen risk communication to rural residents; and improve approaches to environmental detection of the virus.

(ii) *Strengthen the early warning system.* To assess risks to public health and guide protective measures, information is needed on the extent of influenza infection in animals and humans and on circulating viruses. National surveillance systems must be improved urgently in potentially affected countries. When outbreaks in animals occur, active human case detection should be pursued by a coordinated animal-human health team. The strategic actions are: improve the detection of human cases; combine detection of new outbreaks in animals with active searches for human cases; support epidemiological investigation; coordinate clinical research in Asia; strengthen risk assessment; strengthen existing national influenza centers throughout the risk-prone region; and give risk-prone countries an incentive to collaborate internationally.

Phase - Emergence of a Pandemic:

(iii) *Contain or delay spread at the source.* Aggressive containment measures such as isolation and prophylactic use of antiviral drugs may slow pandemic spread and allow time for response measures. An international stockpile of antiviral drugs for an emergency response should be established, starting with a stockpile for targeted early use. The strategic actions are: (i) establish an international stockpile of anti-viral drugs; (ii) develop mass delivery mechanisms for anti-viral drugs; and (iii) conduct surveillance of anti-viral susceptibility.

Phase – Pandemic Declared and Spreading Internationally:

(iv) *Reduce morbidity, mortality, and social disruption.* Although mass vaccination is the preferred intervention, serious issues related to the time lag between emergence of the virus and vaccine

production as well as production capacity constraints must be addressed. Anti-viral supply and production capacity are also limited. Therefore, the main responses in the immediate term should be classic “social distancing measures” such as quarantine, bans on mass gatherings, and travel restrictions, backed up by a well-designed communication strategy. For the longer term, options with industry to improve antiviral and vaccine capacity need to be explored. The strategic actions are: (i) monitor the evolving pandemic in real time; (ii) introduce non-pharmaceutical interventions; (iii) use anti-viral drugs to protect priority groups; (iv) augment vaccine supplies; (v) ensure equitable access to vaccines; and (vi) communicate risks to the public.

(v) *Conduct research during pandemic.* Research is needed for policy development and adjustments for current and future epidemics. The main elements include: assessing the epidemiologic characteristics; monitoring the effectiveness of the interventions; and evaluating the medical and economic consequences. The strategic actions are: (i) assess the epidemiological characteristics of an emerging pandemic; (ii) monitor the effectiveness of health interventions; and (iii) evaluate the medical and economic consequences.

3. In view of the immediacy of the avian influenza threat, WHO recommends that all countries undertake urgent action to prepare for a pandemic. Advice on doing so is contained in the recently revised *WHO global influenza preparedness plan (2005)* and a new *WHO checklist for influenza pandemic preparedness planning (2005)*.

4. Table 1 describes the phases of increasing public health risk associated with the emergence of a new influenza virus subtype that may pose a pandemic threat, and the overarching public health goals under each phase.

Table 1: Phases of Increasing Public Health Risk Associated with the Emergency of a New Influenza Virus Subtype that May Pose a Pandemic Threat

PHASES	OVERARCHING PUBLIC HEALTH GOALS
Inter-pandemic period	
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.	Strengthen influenza pandemic preparedness at the global, regional, national and sub-national levels.
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.	Minimize the risk of transmission to humans; detect and report such transmission rapidly if it occurs.
Pandemic alert period	
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.	Ensure rapid characterization of the new virus subtype and early detection, notification and response to additional cases.
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.	Contain the new virus within limited foci or delay spread to gain time to implement preparedness measures, including vaccine development.
Phase 5. 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 (substantial pandemic risk).	Maximize efforts to contain or delay spread, to possibly avert a pandemic, and to gain time to implement pandemic response measures.

Pandemic period

Phase 6. Pandemic: increased and sustained transmission in general population. Minimize the impact of the pandemic.

a The distinction between **phase 1** and **phase 2** is based on the risk of human infection or disease resulting from circulating strains in animals. The distinction is based on various factors and their relative importance according to current scientific knowledge. Factors may include pathogenicity in animals and humans, occurrence in domesticated animals and livestock or only in wildlife, whether the virus is enzootic or epizootic, geographically localized or widespread, and/or other scientific parameters.

b The distinction between **phase 3**, **phase 4** and **phase 5** is based on an assessment of the risk of a pandemic. Various factors and their relative importance according to current scientific knowledge may be considered. Factors may include rate of transmission, geo-graphical location and spread, severity of illness, presence of genes from human strain (if derived from an animal strain), and/or other scientific parameters.

Source: WHO 2005

Annex 2c: Summary of IFC's role and response

GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC PREPAREDNESS AND RESPONSE

Risks to the Poultry Industry

1. While the potential threat of a global human AI pandemic is real, and receiving much media attention, the impact of HPAI H5N1 virus outbreaks on commercial poultry operations is of the utmost importance to commercial poultry companies.
2. The principal of risk HPAI H5N1 appears to be to non-industrial poultry production where livestock is not contained within a closed regulated environment or, alternatively, in a family household environment. A growing body of evidence suggests that domesticated livestock maintained in these conditions are at an elevated risk of contracting H5N1 from wild migratory birds.
3. The direct threat of H5N1 infection to well run industrial poultry producers employing sound bio-security protocols is relatively low. However, even well run poultry operations with tight bio-security protocols can suffer severe commercial loss from the indirect impact of local or regional H5N1 outbreaks. The recent outbreaks of H5N1 in Europe in 2005, have already had a very serious effect on poultry sales and prices in the region.
4. Adverse media coverage can be a major threat to sustainability of commercial operations. While there is a clear need to keep the public informed, it is essential that media coverage be carefully managed so that unnecessary damage is not done to the commercial poultry industry.
5. With a growing fear of H5N1 outbreaks leading to human infection, possibly mutation to human-to-human contamination and a resulting pandemic, the immediate impact of an H5N1 event is a sharp decline in poultry consumption in the effected area/region leading to reduced producer revenues and cash generation. Even if the proximity of the outbreak does not necessitate the immediate culling of the producer's flock, it is often forced to engage in premature slaughtering of the flock in an attempt to manage the supply/demand balance.
6. In summary, the usual pattern on commercial producers is decline in consumer demand, sharply reduced cash generation, rapidly rising inventory levels and hence a working capital crisis. This can place severe strain on the enterprise from which recovery can take a year or longer. However, a producer which is also engaged in parallel lines of operation, such as pork or beef production or non-poultry trading operations, may be less severely impacted by an H5N1 event, depending on their branding strategy.
7. While every effort needs to be made by Governments and industry associations to exclude HPAI from commercial operations, every commercial company needs to plan to exclude HPAI from its own operation and equally important to prepare for the market impact if there is a HPAI outbreak in country, not to mention, in house.

IFC Client Experience

8. IFC is currently invested, or committed to invest, in poultry commercial operations in nine countries⁶ worldwide. About 70 percent of IFC's poultry portfolio is wholly dependant upon broiler operations. As such, they may be more at risk than diversified operations, which have other diversified sources of revenue. All IFC's clients have some form of bio security protocols in place and, in the wake of growing worldwide concern of the HPAI threat, have as a priority the enhancement of these protocols.

9. Although none of IFC's clients have experienced any direct H5N1 infections, two clients have been adversely impacted by H5N1 outbreaks, one in Asia in 2003 and the second, in Europe in October 2005. Both enterprises had bio-security protocols in place and have since taken steps to further strengthen these procedures with a particular eye to the H5N1 threat. In the case in Asia, there were substantial direct production losses and decontamination costs, in addition to unfortunate loss of two human lives. In the most recent case in Europe, the outbreak was detected early in the vicinity of the company and successfully contained. Therefore, there was no outbreak in the commercial flock and no direct production losses in the commercial operation. However, even in this latter case, the firm is facing severe implication, e.g.: sales drops to about 20% of the normal level; market price reductions of about 40%; surplus production to be stored and, consequently, inventories rising significantly; unexpected costs due to urgent corrective actions needed to be implemented; substantial increases in overall costs and reduction in net margins; cash flow deficits that may occur until 9 months after the event.

IFC Response

10. IFC has been pro-active in assisting its clients to review and enhance their bio-security protocols and develop contingency plans to respond to an HPAI event. Prior to the recent outbreaks, IFC had assisted its European and Egyptian clients identify consultants to assist in the enhancement of bio-security and contingency plans, and have collected and disseminated lessons learned from Asian and European experiences. In addition, IFC has required each poultry client to provide an action plan of how they would plan to address an HPAI event.

11. IFC is planning to visit all client companies to review their reported contingency plans, audit their protocols and make an individual risk assessment. Where any client's bio-security protocols and contingency plans are deemed inadequate, agreement will be sought to develop an action plan to enhance the present arrangements. In addition, it is planning to assist clients with existing resources (EU, FAO, AUSVETPLAN) that can be used as bases for developing in-house protocols, and to highlight that the adverse publicity being given to the poultry industry and its products can result in major shifts in demand if HPAI is found in-country, and that preparation is required to address planning, market, public relations and financial issues. IFC is also developing resource base/linkages within IFC website, and will adopt a proactive regional office involvement with governments, World Bank Group, poultry industry in client countries to encourage preparedness and World Bank Group credit availability.

⁶ Mexico, Turkey, Brazil, Korea, Ukraine, Ecuador, Russia, Egypt and China

Annex 2d: Country Preparedness Assessment Tool and Financing Under the APL

GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC PREPAREDNESS AND RESPONSE

A. COUNTRY STATUS

1. To have maximum impact on reducing the spread and cost of a pandemic influenza, it is critical that all qualifying countries begin implementing either an HPAI control and eradication strategy in the case of countries where the disease is endemic in domestic poultry with new human infections or own country preparedness and response plans for “newly-infected countries” or “country at risk”. Achieving this is one of the development objectives of the proposed APL.
2. A first group of countries, those which have been affected by the disease as early as 2003, are committed to controlling the disease at source in the poultry sector. Some of these countries, such as China, Indonesia, and Vietnam are: (a) implementing aggressive control measures through the deployment of the conventional methods of culling, bio-security, and movement control, combined with strategic vaccination of domestic poultry and ducks; (b) strengthening active surveillance program; and (c) developing emergency preparedness plans. The proposed APL would support this first group of countries in their long term effort to control HPAI at source and reduce opportunities for human infections.
3. Several other World Bank client countries, including some newly-infected countries, have begun formulating preparedness and response plans following OIE’s, WHO’s and FAO’s global influenza preparedness plans and checklists. The lack of operational plans and sufficient financing may be a significant constraint to implementing these responses. Part of the Bank’s value added in the effort to prevent the spread of a pandemic influenza is to support the development of implementable programs and to provide incremental resources to finance country projects that are compatible with the recommendations of the above international agencies.

B. COUNTRY PROJECTS

4. For countries to make optimal use of the Bank’s resources, they should be in a position to absorb the assistance rapidly and cost-effectively soon after it is made available. This would strengthen the public credibility and accountability of country projects. To provide the incentive for this to occur, a country project would be considered *eligible* for financing under the proposed APL when it has prepared a preparedness plan in accordance with international response plans, and when it has prepared an HPAI control strategy in infected countries. This would be treated as a **condition for negotiations** of the proposed country. The final decision to obtain financing under this APL would also depend on other traditional considerations affecting member countries-World Bank transactions.
5. Country projects would be prepared and appraised following OP 8.5 procedures, assuring that quality-at-entry norms apply and that safeguard policies and standards for maintaining financial management and procurement discipline are observed. The operational design of each project would account for the factors normally considered in formulating detailed project components and phasing of project activities. It would be important that all projects correctly reflect the environment in which they would be implemented with scaling and phasing of project activities, management arrangements, cost-sharing provisions, risk mitigation requirements, among others, appropriate to the countries’ current situation. Consequently, a program in a country with little history of Bank-financed projects and relatively weak institutions could be considered equally “eligible” for inclusion in the program as one in

a country with long history and well-developed institutions, as long as the project design was appropriate for the situation. Both could, in principle, meet the criteria considered relevant for initiating a successful program.

C. AVIAN INFLUENZA PREPAREDNESS AND CONTROL STRATEGY ASSESSMENTS (ANIMAL HEALTH COMPONENT)

Avian Influenza Epidemiological Status

7. The rapid spread of H5N1 HPAI across Southeast Asia, in 2003 and 2004, which caused high mortality in its previously unexposed, highly susceptible commercial and smallholder poultry populations, was followed by the detection of the disease in new territories since the summer of 2005. H5N1 from South Asian origin has moved westwards and outbreaks have been confirmed in Croatia, Kazakhstan, Mongolia, Romania, Russia and Turkey. After the confirmation of HPAI in Europe, the risk of HPAI spreading to the Middle East and African countries has markedly increased and one of the major concerns is the potential spread of AI through migratory birds to northern and eastern parts of Africa.

HPAI Country Status

Category	Epidemiological Status	Preparedness and Control Strategy
Countries in Endemic Situation (eg. Cambodia, China, Indonesia, Lao, Vietnam)	<ul style="list-style-type: none"> High disease incidence among domestic poultry and ducks Disease is endemic in several regions and new outbreaks are resurging New human infections are being detected Little or no immunity in terrestrial poultry population Carrier duck populations are a source of infection 	<p>Aggressive Control Strategy</p> <ul style="list-style-type: none"> Conventional methods: stamping-out, bio-security, and movement control, Combined with strategic vaccination of domestic poultry and ducks <p>Enhanced Surveillance</p> <ul style="list-style-type: none"> Targeted risk-based active surveillance Early Detection Rapid Response <p>Legal and regulatory framework</p> <ul style="list-style-type: none"> Veterinary Law and HPAI Contingency Plan Compensation framework for farmers
Newly Infected Countries (eg. Croatia, Kazakhstan, Mongolia, Romania, Russia, Turkey)	<ul style="list-style-type: none"> Low level of disease incidence Limited number of outbreaks No human infections Highly susceptible poultry population Carrier ducks probably not important Role of migratory birds in disease transmission 	<p>Enhanced Surveillance</p> <ul style="list-style-type: none"> Targeted risk-based active surveillance Early Detection Rapid Response <p>Control Strategy</p> <ul style="list-style-type: none"> Stamping-out, bio-security, and movement control, <p>Legal and regulatory framework</p> <ul style="list-style-type: none"> Veterinary Law and HPAI Contingency Plan Compensation framework for farmers
Countries at risk (all other countries with different level of risks)	<ul style="list-style-type: none"> Freedom from infection without history of HPAI infection Highly susceptible poultry population High risk of HPAI in poultry and humans if disease introduced, particularly for the countries on migratory birds flyways Ducks reservoirs probably not important 	<p>Preparedness</p> <ul style="list-style-type: none"> Prepare contingency and emergency plans Prevent introduction of HPAI Compensation framework for farmers <p>Enhanced Surveillance</p> <ul style="list-style-type: none"> Early Detection Rapid Response Targeted risk-based active surveillance (eg. migratory bird surveillance)

7. There is also a need to assess the epidemiological situation with regard to other avian influenza virus.

Risk Analysis

8. The risk analysis will be based on the country context in terms of existing farming systems, trade practices, “risky” human behaviors, capacity to detect the disease and respond, political commitment and legal and regulatory framework.

Evaluation of Veterinary Services

9. The ability of a country to prevent, detect and control an HPAI epidemic depends on the quality of its national Veterinary Services. To be effective, national Veterinary Services should operate based on scientific principles and be technically independent and immune from political pressures on its user. To meet international standards set by the OIE, Veterinary Services need to develop and document appropriate procedures and standards for the implementation and management of animal health measures and international veterinary certification activities. In order to assist in this effort the OIE has developed instruments to assist national Veterinary Services in carrying-out a self-evaluation and establish their current level of performance, form a shared vision with the private sector, establish priorities and facilitate strategic planning. In this respect, the audit procedure, entitled ‘Performance, Vision and Strategy for Veterinary Services’, due to be incorporated into the standards published by the OIE as the reference instrument approved by the Member Countries, would be used for the evaluation of national Veterinary Services under the GPAI.

10. In the case of HPAI, the assessment of national Veterinary Services should focus on the following areas:

- Technical capacity, including diagnostic capability, emergency response capability, surveillance, quarantine, emerging disease, and risk analysis;
- Human and financial capital, including human resources, training, budget, stabilities of policies and program, and technical independence; and
- Interaction with the private sector, including importance and status of private sector, accreditation, information, communication, and capability to coordinate a response.

11. Often linked to the national Veterinary Services is the national research system. The dynamics of the spread and persistence of HPAI remains unclear and call for strategic research to investigate the epidemiology of Avian Influenza, evaluate the efficacy of vaccines on different species, and assess the risk of various poultry production systems and along marketing chain. There is, therefore, a need to assess the national research system in the context of HPAI and its relationships with regional and international research institutions and reference laboratories.

Value Chain Analysis of the Poultry Sector

12. To understand the risk and estimate the cost of an HPAI epidemic, there is a need to carry-out a brief review of the poultry sector (producer and consumer), including the feed industry, import, manufacturing and delivery of veterinary products and vaccines. An analysis of the different farming systems will also need to be carried-out, both in terms of poultry raising practices and economic and social vulnerability.

Policy and Regulatory Framework

13. The assessment would also include review of the policy and regulatory framework and focus on the following areas:

- Veterinary Law and HPAI Contingency Plan
- Compensation framework for farmers
- Bio-security measures
- Animal movement (national and trans-boundary)
- Reporting of the disease
- Communication and public information
- Destruction and disposal of affected poultry (it is essential that affected poultry be speedily and humanely slaughtered)
- Compartmentalization and zoning
- Restructuring of the poultry industry over the long run

14. A major concern is the safety and protection of animal health staff and all people involved in controlling the HPAI epidemic in case of outbreaks. For instance, in Vietnam there are almost 100,000 people involved in a massive vaccination campaign and control strategy who are at risk. These people need to be adequately trained and protected, and a serological surveillance program needs to be put in place.

Planning and Coordination

15. In planning and organizing the response to the threat of a pandemic, the following needs to be answered.

Planning

- Is there a National Strategic Action or Preparedness Plan (“the plan”) in place? If not, are steps being taken to prepare such a plan? When will it be ready?
- Does the plan clearly articulate common objectives across both the animal and human health sectors for responding to the epidemic (as compared to a list of unconnected activities in each sector)?
 - If so, what are they?
 - Are they appropriate from a technical perspective? Are they feasible from an implementation perspective,
 - Are short- and long-term objectives differentiated?
- Is the plan based on what is known about the likely course of the epidemic?
- Is it genuinely strategic with respect to the identification, coordination and sequencing of activities?
- To what extent does action on the plan depend on very senior political intervention, and how likely is it that senior politicians will be willing to be involved?

- Have communication plans been developed for providing essential messages to key actors involved as well as the general population on the nature of the epidemic and the way the country plans to respond (is the public aware of the AI problem and do people have some knowledge of how to protect themselves?)

Coordination Mechanisms

- What is the nature of collaboration across sector and institutions?
- Have formal coordination mechanisms been established?
- If not, what are the main impediments? When will these mechanisms be in place?
- If so, what are they? For example:
 - Is there a national coordinating body for AI?
 - What is the level of Government Commitment?
 - Has a leading person or agency been identified with mandated TOR?
 - Have roles and responsibilities been assigned to ensure that relevant parties stay up to date
- To what extent do institutional arrangements being acted upon depend on senior political intervention, and how likely is it that senior politicians will be willing to be involved?
- Is there a donor coordination body (e.g., Working Group) on AI? Does it interact with the national coordinating body?

D. HUMAN PANDEMIC PREPAREDNESS ASSESSMENT (HUMAN HEALTH COMPONENT)

16. To evaluate the preparedness status and readiness in member countries, existing tools prepared by international partners such as the European Center for Disease Prevention and Control (ECDC), in collaboration with WHO and the European Commission would be used⁷. In using these tools, the objectives would be:

1. To evaluate the status of pandemic influenza preparedness in the country
2. To determine a baseline of preparedness, or to determine progress made since an earlier assessment.
3. To identify weaknesses and strengths of pandemic influenza preparedness.
4. To identify steps for improvement.

17. If a country does not yet have a preparedness plan, the assessment would result in planning the development of a plan, including a methodology and timeline for completion. As pandemic influenza preparedness is essential at all levels of the political and societal structure of a country, the assessment would be conducted at the national and local levels.

18. The assessment for public health preparedness would focus on:

⁷ ECDC in collaboration with WHO and the EC. 2005. *Assessment Tool for National Pandemic Influenza Preparedness*. Draft document.

Seasonal Influenza:

- Seasonal influenza surveillance systems in place and functional
- Seasonal influenza vaccination program for target groups in place

Pandemic Influenza (national level)

Planning and Coordination

- Relevant of pandemic planning recognized by decision makers and preparedness policies developed and adopted
- Legal and ethical frameworks established coherent with international legislation (International Health Regulations)
- National Pandemic Planning Committee established
- Command and control structure in place outlining management and decision-making processes of all organizations involved in response to a health emergency
- Country has national influenza pandemic preparedness plan that is consistent with international plans and periodically updated

Situation Monitoring and Assessment

- National system available for influenza surveillance in both humans and animals.
- Access to at least one laboratory able to offer routine influenza diagnosis, typing and sub-typing, but not necessarily strain identification.
- Outbreak investigation capacity available (inventory of resources available).
- Contingency plans developed for ongoing monitoring of impact and resources needs during the pandemic phase.

Prevention and Containment

- National guidance for public health response developed
- National guidance for civil emergency response developed
- Anticipated resource implications for implementation addressed
- Tabletop exercises conducted and results used to improve planning
- Strategy to access anti-virals for national use (e.g., stockpiling) developed
- Priorities and criteria for deployment and use of anti-virals defined
- Strategy to access pandemic vaccines explored/developed; regulatory issues, liability, intellectual property rights addressed
- Priorities and criteria for use of pandemic vaccines defined; preliminary priorities for pandemic vaccines use developed, based on expected availability

- Logistic and operational needs for implementation of pandemic vaccines strategy reviewed.

Health System Response

- Health services are informed about national pandemic influenza policies including preparedness plan
- Contingency plans developed on how to maintain essential services
- Authorities, responsibilities and pathways identified for command and control of health systems in the event of a pandemic
- Pharmaceutical and other material supply needs estimated; arrangements to secure supply commenced
- Plans for health workers training in pandemic influenza response developed

Communication

- National communication strategy for pandemic influenza established
- Capacity planned and tested for meeting expected domestic information demands for diverse audiences, including professional/technical groups, the news media and general public
- Networks among key response stakeholders established, including risk communicators, non-health government departments, and professional and technical groups
- News media with national plans familiarized, including preparedness activities and decision-making related to seasonal and pandemic influenza

E. INVENTORY OF DEVELOPMENT PARTNER ACTIVITIES

19. A number of donors have already initiated efforts to assess needs and provide support in high priority AI countries. The country assessment should include a section that contains descriptions of past and current activities undertaken by partners.

F. RESOURCE IMPLICATIONS OF GETTING PREPARED

20. Some countries such as Vietnam are already spending significant resources to combat the epidemic. Others will only have begun efforts to prepare for a possible epidemic. Nonetheless, country assessment should include preliminary estimate of country-specific resource requirements.

21. In addition the assessment should also address the following issues:

- Description of the extent to which efforts have been made to inventory potential needs and resource requirements.
- Has the government allocated a budget for AI?
- Are donor funds already committed for this purpose?
- It would also be helpful to have suggestions on how specific assistance programs might be structured.

G. CATEGORIZATION OF COUNTRY READINESS

22. Two elements need to be taken into consideration: (a) the risk assessment, based primarily on the epidemiological status of avian influenza (countries in endemic situation, countries at risk and newly-infected countries) which would determine the emergency nature of country assistance; and (b) on the preparedness assessment. Based on the results of the preparedness assessment, countries would be grouped as:

23. **Advanced.** An eligible country would have a well developed and approved national preparedness and response plan showing understanding of the issues and goals for addressing them, actions adapted from international guidelines and best practices to meet national priorities, evidence of strong public support and a well balanced range of stakeholders. It would have identified investment priorities to support the implementation of the plans, have included financing estimates of the needs; defined key indicators for monitoring and evaluating the implementation of national programs; and be conducting ongoing public dialogue and/or involvement.

24. **Moderate:** As for “Advanced” but missing some key elements in the plans and without reliable financial estimations.

25. **Low:** Many key aspects missing, especially public dialogue and establishment of goals, requiring significant additional identification of implementable actions and direction.

26. When countries meet a satisfactory level of readiness, the World Bank would appraise financial support for the country project. During project preparation, as with most projects, member countries would normally advance on meeting participation criteria in tandem. Delays would indicate the need for further preparation.

Annex 3: Financing and Coordination Frameworks and the World Bank's Role

GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC PREPAREDNESS AND RESPONSE

1. Frameworks for the financing and coordination of the international response to the challenges of Avian and Human Pandemic Influenza are currently under discussion. The approach described here reflects the current state of the debate, based on the conclusions from the FAO/OIE/WB/WHO Meeting on Avian Influenza and Human Pandemic Influenza, held in Geneva, November 7-9, 2005. At present, many governments in countries affected by, or at risk from, Avian Influenza are not ready to cope with outbreaks, much less a pandemic, so that preparedness is vital in every country, in every Region. As the conclusions of the Geneva meeting set out, such preparedness will include integrated country plans built on and strengthening existing systems and mechanisms. Those plans will need to be comprehensive, coasted, and evaluated, and will include the protection of vulnerable groups such as children, refugees and displaced populations. Response mechanisms identified through such plans will need to be rehearsed through simulation exercises.

2. However, such plans are not intended to deal with a major human pandemic. In that eventuality, the assumption is that financing and coordination arrangements would need to be modified to cover the large-scale provision of antiviral medicines and vaccines, in a timely way and where needed. In the absence of an outbreak, many uncertainties remain, especially as vaccine development and availability continues to evolve, and the pricing of both vaccines and antiviral medicines are under discussion between suppliers and WHO.

Financing Framework

3. The Geneva meeting strongly endorsed the need to finalize the costing of integrated, country plans, and the regional and global requirements to support them. It also endorsed the need to spell out the financing framework at country level to respond to such costs, in preparation for the meeting to be hosted by the Government of China in January 2006. Chart 1 shows what such a framework might look like, covering potentially available sources of external funding to help finance an integrated country program. This framework assumes that: (i) existing resources (from government and the domestic private sector, and from external donors) will be reprioritized as far as possible, and that (ii) all donors will contribute to a single program, and avoid pursuing separate approaches that might overlap or contradict each other. As the chart shows, the World Bank is a potential channel for finance at country level, both using its own resources -- in particular via the proposed APL -- and through any available World Bank-administered trust funds (see paragraph 7 below).

4. Chart 2 shows how the financial framework might look for the international system as a whole. Compared to the country level picture in Chart 1, the main difference is the inclusion of the global agenda that will need to be financed, and also key requirements of FAO/OIE/WHO and related agencies. However, the APL is not expected to provide direct support in either case, while the proposed trust fund, if established, might provide support to the global agenda, but is not currently expected to be an intermediary between donors and UN agencies.

Coordination Framework

5. To complement these financing arrangements, the meeting in Geneva also agreed on the need to finalize a coordination framework that builds on existing mechanisms at the country level, and on international best practices at the global level. In so doing, that framework needs to ensure that it

avoids duplication of efforts; optimizes the use of global assets and resources; facilitates knowledge transfer and active learning as the situation evolves; and provides a forum for building strong, effective working relationships before a full scale crisis hits. The meeting broadly endorsed the approach on these lines laid out by the Senior UN System Coordinator for Avian and Human Influenza, as reflected in Chart 3.

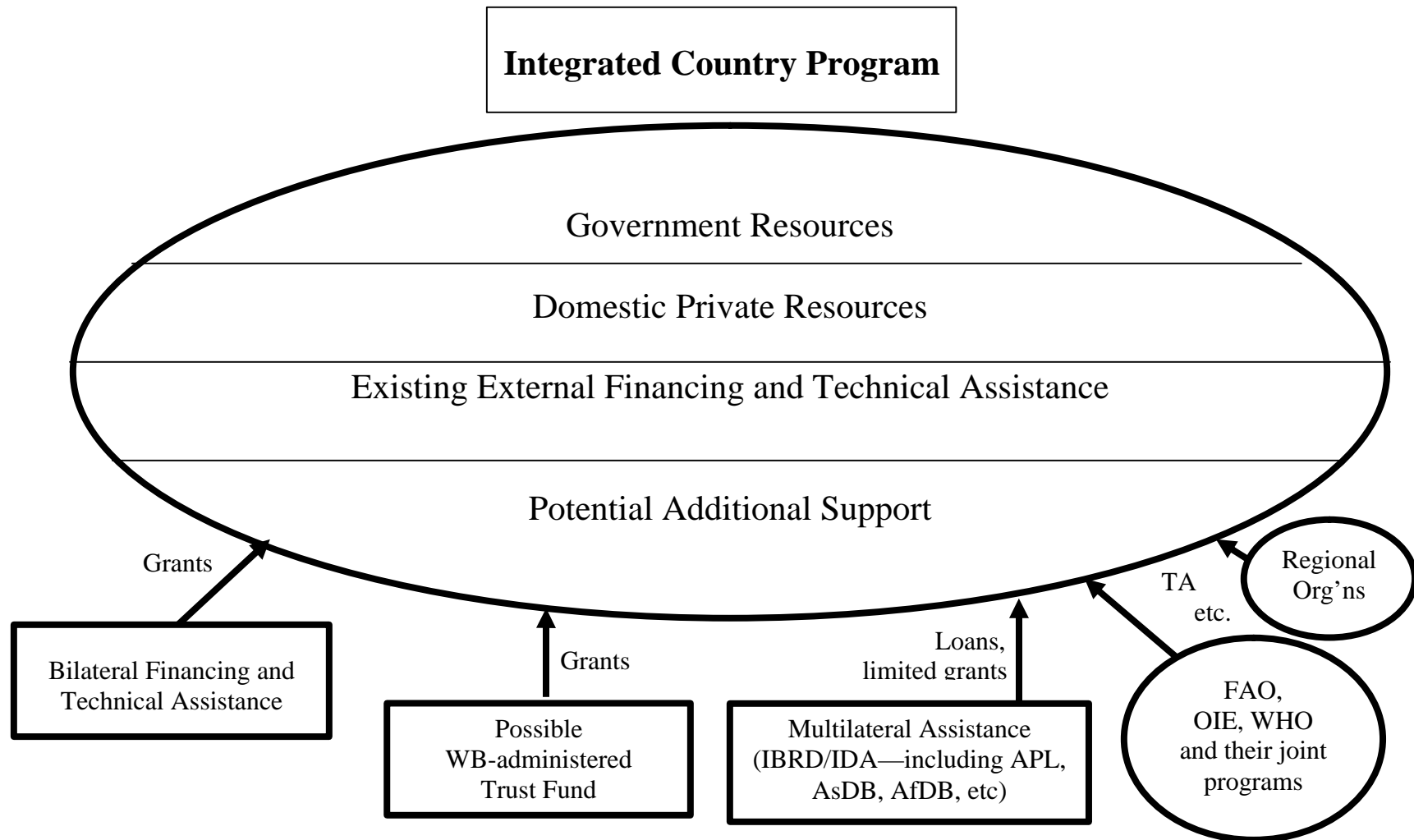
6. This approach builds on three types of coordination that must come together, in formulating and implementing coherent strategies at country level. At the country level, coordination should build on existing arrangements, but also ensure that it supports close collaboration between the Human and Animal Health perspectives. New arrangements are needed at both regional and global levels to achieve global alignment and harmonization at a working level among the interested parties; facilitate information exchange among these parties; set global, technical standards; and, prioritize activities against the broader objectives of the overall partnership. Finally, there is also a need for a high level of coordination to bring political capital to bear and address key issues around aligning global strategies, tracking progress against key indicators, identifying gaps and blocks, and providing the impetus to drive forward ways to overcome such blocks. For now, it has been proposed that the high level coordination be described as an International Consortium on Avian & Pandemic Influenza. That consortium might be chaired by the Senior UN System Coordinator, who would look for support to all parts of the UN system, including the World Bank Group. At the Geneva meeting, both the Senior UN System Coordinator and the US Government representative expressed interest in finding ways to bring this approach together with the US-led International Partnership on Avian and Pandemic Influenza (IPAPI), in order to maximize the synergy between them.

World Bank's Role

7. On the financing side, apart from the APL, and the possible reprogramming of existing relevant operations (see para 37), the main expected instrument is a proposed multi-donor trust fund to be administered by the World Bank. The possibility of such a trust fund has been discussed with some donors, and will be pursued further if donors so wish. The current expectation is that, if developed, its primary role would be to channel resources in support of integrated country programs, ideally as co-financing of the APL. However, the design of any such trust fund will remain under review until the potential role it might play is clearer. Any proposal would necessarily be aimed at filling otherwise empty niches, and avoiding duplication. It may be that, based on the niches needing to be covered, for system reasons more than one trust fund would need to be established, but if so the various funds would need to be managed in an integrated way alongside the other instruments deployed by the Bank. Any trust fund(s) established would be subject to full recovery of incremental costs from trust fund administration.

8. To the extent that the World Bank plays a role in coordination among donors at country level, supporting Government leadership, this approach implies that the Bank will also play that role for work on Avian Influenza. At the international level, coordination arrangements still need further detailing, as noted by the Geneva meeting. Bank staff are working closely with the Senior UN Coordinator, the US government and the European Commission to this end.

Country-Level Financing and Support Framework



Annex 4: Results Framework and Monitoring

GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC PREPAREDNESS AND RESPONSE

GPIA Program Objective	Outcome Indicators	Use of Outcome Information
To minimize the global threat posed by HPAI infection and other zoonoses in domestic poultry and to prepare for, control, and respond to an influenza pandemic and other infectious disease emergencies in humans.	<ul style="list-style-type: none"> • National integrated preparedness, control and response plans prepared and accepted by WHO, OIE and FAO. • Improving trend in global poll of experts available to provide technical support for HPAI readiness and response. • Contained and diminishing pattern of HPAI infection in poultry and humans. 	<ul style="list-style-type: none"> • Preparation of acceptable plans will indicate country, regional, and global preparedness and help gauge where donor support is most needed. • Availability of technical experts is key to provide timely and effective support to countries in need. • Epidemiological tracking is essential to manage HPAI effectively.
PDO (for country/countries participating in GPIA)	Outcome Indicators	Use of Outcome Information
To minimize the threat in _____ (country or countries) posed by HPAI infection and other zoonoses in domestic poultry and prepare for, control, and respond to an influenza pandemic and other infectious disease emergencies in humans.	<ul style="list-style-type: none"> • All participating countries have in place national integrated preparedness, control and response plans which are accepted by WHO, OIE and FAO. • Increased availability of regional experts able to develop HPAI readiness, control and response systems in individual countries. • If infection of HPAI is found in poultry or humans, the infection does not spread beyond the initial area of infection. • Decreased morbidity due to infection. 	<ul style="list-style-type: none"> • Initial plans of action to be evaluated/endorsed by WHO, OIE and FAO and subject to regular assessment thereafter (*). • Regular evaluation will allow for refinement of recommended approaches and adoption of best practice and lessons learned. • Eliminating morbidity due to AI infection is a key target of GPPIA.
Intermediate Outcome (One per Component)	Intermediate Outcome Indicator (*)	Use of Intermediate Outcome Monitoring
I. Animal Health Component		
Component I.A: National policy framework defined and national strategy developed to prevent, control, and eradicate HPAI among the animal population	<ul style="list-style-type: none"> • A country-specific strategy (and its corresponding information system) developed, adopted, and disseminated to control and eradicate HPAI in areas at risk. • FAO/OIE approval of national policy framework and strategy. 	FAO/OIE approval needed to ensure global consistency and appropriateness of program

<p>Component I.B: Strengthened disease surveillance, diagnostic capacity and virus research among animal population</p>	<ul style="list-style-type: none"> • Animal surveillance activities, applied veterinary research and strategic studies necessary to control and eradicate HPAI in areas at risk designed and completed. • 100% coverage of at-risk areas with operational community-based surveillance networks. • 75% average monitoring coverage in at-risk areas. • 100% monitoring of poultry breeding stock farms. 	<p>Degree of annual increase in outcome indicators to be specified in the country-specific strategy. Deviations from targets to be used as indicator of need for program adjustments.</p>
<p>Component I.C: Outbreak Containment Plan prepared and activated as needed in response to AI outbreaks</p>	<ul style="list-style-type: none"> • FAO/OIS endorsement of Outbreak Containment Plan and certification of readiness rating obtained by FAO/OIS. • Emergency supplies procured and available at strategic locations in the field. • 100% vaccination of poultry in areas where the virus is endemic or in countries where other methods are not feasible. 	<p>Rapid response capacity is necessary to control and eradicate an outbreak of AI.</p> <p>Degree of annual increase in outcome indicators to be specified in the country-specific strategy. Deviations from targets to be used as indicator of need for program adjustments.</p>
<p>II. Human Health Component</p>		
<p>Component II.A: Public health program planning and coordination enhanced to better manage public health emergencies</p>	<ul style="list-style-type: none"> • Inter-institutional and multi-sectoral coordination arrangements defined and put in place. • National pandemic planning committee established. • Command and control structure for program finance and management defined and in place. • National strategic plans for improvement of public health surveillance and disease control systems prepared according to WHO recommendations and approved. • Needed public health laws, regulations and other legal provisions revised and/or promulgated. 	<p>WHO approval needed to ensure global consistency and appropriateness of program</p>
<p>Component II.B: National public health surveillance systems strengthened</p>	<ul style="list-style-type: none"> • National health surveillance for influenza virus fully developed at national level. • Number of at risk regions in the country that have implemented a system for influenza virus surveillance and control. • Number of laboratories available for routine influenza diagnosis, typing and sub-typing, rehabilitated and equipped, 	<p>Degree of annual increase in outcome indicators to be specified in the country-specific strategy. Deviations from targets to be used as indicator of need for program adjustments.</p>

	<p>and with improved biomedical waste management systems.</p> <ul style="list-style-type: none"> • Availability of a laboratory that qualifies as a national influenza center • Number of public health agencies and laboratories with a computerized information and telecommunications systems in place and operational. • Number of health personnel trained in influenza virus surveillance and control. • % of cases of influenza virus strains confirmed by laboratory analysis. • % of influenza virus cases and deaths notified to vital statistics. • % of states and local agencies submitting regular weekly and monthly reports on the influenza pandemic. 	
<p>Component II.C. Health system response capacity strengthened</p>	<ul style="list-style-type: none"> • ‘Social distancing measures’, such as quarantine, bans on mass gatherings, and travel restrictions, developed and backed up by communication strategy. • Critical medical care networks strengthened and readied to cope with increased demand for services, and to prevent the spread of infection among high-risk populations and health care workers. • Strategy for non-pharmacological public health measures developed. • Strategy to access pandemic vaccines developed. • Strategy to access anti-virals for national use (e.g., stockpiling) developed. • Contingency plans for maintenance of essential services within the health and outside the health system developed. • Number of facilities with intra-hospital infection control strategies in place. • Number of professionals and support personnel trained for influenza virus control activities, before and during pandemic. 	<p>Degree of annual increase in outcome indicators to be specified in the country-specific strategy. Deviations from targets to be used as indicator of need for program adjustments.</p>

III. Public Awareness and Information Component		
Component III.A: Capacity building for disease control	<ul style="list-style-type: none"> • Public information on the recommended practices for control and eradication of HPAI among key target groups (e.g., poultry producers and their families) developed, tested, and disseminated. • National communication strategy for pandemic influenza established and materials and messages prepared. • Public information campaign launched in at-risk areas; • Evidence of high level of awareness by target groups following dissemination of messages. 	Development of a strong, sustainable human resource base is one of the most important objectives of country-specific disease control strategies; the component activities will support development of this base.
Component III.B: Information and communication services developed to support response to outbreak	<ul style="list-style-type: none"> • Communication materials developed, tested and disseminated for use in public information campaigns designed to reduce the risk of, and provide a measure of control during, a health emergency. • Number of question and answer sheets and fact sheets on influenza, influenza vaccine, antiviral agents, and other relevant topics developed and distributed. • Number of presentations, slide sets, videos, documentaries, and symposia on surveillance, treatment and prophylaxis developed and delivered. 	Degree of annual increase in outcome indicators to be specified in the country-specific strategy. Deviations from targets to be used as indicator of need for program adjustments.
IV. Implementation Support and Monitoring and Evaluation Component		
Component IV.A: Coordination and management of project activities carried out as planned.	<ul style="list-style-type: none"> • Competent staff appointed to coordinate program activities • Program reports, financial monitoring, procurement and disbursement reports, audits, management and financial reports prepared and submitted periodically. 	Indicators will allow for the verification of satisfactory and timely progress in program management.
Component IV.B: Coordination and management of project M&E activities carried out in a professional manner, as planned.	<ul style="list-style-type: none"> • Baseline developed for monitoring and evaluating program impact. • Methodology defined and monitoring and evaluation periodically undertaken. 	Data collected through M&E activities will be key for defining what program adjustments are needed.

(*) Evaluation programs of WHO, OIS and FAO to be applied and data on indicators collected through regular assessments/audits by technical and social audit teams to measure attainment of outcomes.

Annex 5: Detailed Program Description

GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC PREPAREDNESS AND RESPONSE

1. The program would finance activities under four components: (i) animal health, (ii) human health, (iii) public awareness and information, and (iv) implementation support, monitoring and evaluation. Even though the activities are organized by sectoral components, the program calls for, and will strongly endorse integrated national plans that ensure common objectives across sectors for dealing with this issue. Moreover, as knowledge about Avian Flu and influenza preparedness continues to evolve and given the diversity of the countries affected, these components are indicative of likely activities to be financed. Specific country programs should build in their design, these activities, as well as country knowledge and emerging technical updates and design issues.

I. ANIMAL HEALTH COMPONENT

2. The program will support national prevention and control strategies proposed by individual countries to cover their needs in the short, medium or long term. Individual country projects would be based on detailed assessments of the avian influenza epidemiological status, of the capacity of national Veterinary Services to cope with HPAI epidemic and the vulnerability of the poultry industry to new emerging infectious diseases. Individual country projects would support four areas of activities described below:

- Enhancing HPAI prevention and preparedness capability for countries at-risk;
- Strengthening of Veterinary Services, disease surveillance, diagnostic capacity and applied research for HPAI disease-free and infected countries;
- Strengthening HPAI control programs and outbreak containment plans, for countries in pandemic situation and newly infected countries; and
- Improving bio-security in poultry production and trade, with the longer term vision of restructuring the poultry industry.

A. Enhancing HPAI prevention and preparedness capability for countries at-risk

A1: Adapting National Policy Framework. This sub-component would provide support to activities related to the improvement in the regulatory framework and the harmonization and rationalization of animal health governance to address key policy issues to ensure that the recommended disease control, prevention and eradication measures are implemented in a uniform and effective way and in accordance with OIE standards and guidelines. Activities would be related to bio-security, vaccination, control of animal movement, border control, culling and disposal of carcasses, compensation, restructuring of poultry industry, compartmentalization and zoning, and other regulations related to the poultry sector. This sub-component would support reviews and strengthening of existing regulations and policies, and would fund related policy studies and dissemination workshops. More specifically this sub-component would support key diagnostic and assessment studies, including: (a) evaluation of National Veterinary Services; and (b) review of National Compensation Policy.

3. **Evaluation of Veterinary Services.** There is a need to support developing countries to bring their national Veterinary Services (VS) into line with international standards in terms of governance, organization and functioning, including promoting an active partnership with the private sector. OIE has established an 'Animal Health Code' instituting scientific, technical and organizational standards -- voted

by the representatives of their Member Countries. Specific instruments are also available that enable countries to carry out an internal evaluation of their Veterinary Services to verify their compliance with the standards. In this respect, the audit procedures, entitled 'Performance, Vision and Strategy for Veterinary Services', due to be incorporated into the standards published by the OIE as the reference instrument approved by Member Countries, would be used for the evaluation of national VS. Veterinary Services 'Veterinary Services' means the Veterinary Administration, the Veterinary Authorities and staff registered or licensed by the Veterinary Statutory Body, as defined in the OIE Terrestrial Code, of a country or group of countries to prevent and/or control animal diseases. They include both the public and private components of national mechanisms for the control and prevention of animal diseases.

4. In countries currently infected with avian influenza and in countries at risk, actions in the short-term will include an emergency partial audit of the VS for the following priority components:

- capacity for rapid preparation and implementation of emergency plans;
- confirmation of clinical and laboratory diagnoses;
- capacity and authority of the VS to prevent the entry and spread of diseases in the country;
- ability of the VS to obtain the necessary financial resources to compensate livestock producers;
- capacity to conduct, where necessary, national vaccination campaigns (e.g. where the disease has become endemic); and
- capacity to update national legislation, emergency plans and the control systems to verify their application in the aforementioned fields and to involve the private sector in prevention activities.

5. The actions to be taken in the medium-term involve the restructuring of the Veterinary Services of developing countries, in association with their public and private sector partners. To determine normative deficiencies in terms of governance, organization, functioning and resources, an in-depth evaluation of national Veterinary Services will be needed to measure the capacities of the VS in the following areas:

- awareness of and compliance with international standards;
- recruitment and training procedures for public and private sector staff (initial training and continuing professional education);
- independent and sustainable funding of activities;
- conditions under which policies are implemented and their application monitored, including for laboratories;
- independence with regard to the political authority, notably in terms of the transparency of animal health status;
- consultation and involvement of public and private sector partners that are beneficiaries of their actions, including consumers;
- participation in the work of international bodies;
- conditions of accreditation for the delegation of public services to partners who are private operators; and
- implementation of programs in partnership with the private sector.

6. Concerning the access to regional and international markets for animals and animal products, the capacity of the VS will be evaluated in the following areas:

- compliance of legislation with OIE standards;
- quality of export certification;
- equivalency agreements with countries that are trading partners;
- measures relating to traceability of animals and animal products and their implementation; and

- application of the concepts of zoning and compartmentalization.

7. **Review of National Compensation Policy.** Early detection and reporting, as well as rapid response, depends on the incentive for farmers to timely report sick poultry and, therefore, on an adequate compensation framework. Such payment can impose a significant fiscal burden on a country. The objective of the study is to review and strengthen the existing national compensation policy framework for HPAI. A revised National Compensation Policy will be presented to the Government for approval.

A2: Improving HPAI Prevention and Control Planning. This sub-component would provide support to activities needed to help countries to prepare a National Emergency Contingency Plan for HPAI. Country-based disease control options and strategies will have to be defined by each country according to its specific conditions, constraints and possibilities (in particular, the capacity of its VS, structure and importance of its poultry sector, and its status regarding HPAI). These country strategies will have to address a large number of inter-related issues to produce an effective response. The sub-component will provide support to activities needed to help each country to prepare and develop its own strategy to confront a HPAI outbreak. More specifically this sub-component would support the following activities: (a) preparation of National Emergency Contingency Plan for HPAI and (b) attendance to national and international conferences.

10. **Preparation of a National Emergency Contingency Plan for HPAI.** Building on existing preparedness and action plans to prevent and control HPAI epidemics in domestic poultry, water fowl and wild birds, a team of national and international consultants will assist the Ministry in charge of Animal and Animal production to prepare an Emergency Contingency Plan which will be presented to the Government for approval. The consultants will collaborate closely with the National Avian Influenza Committee (or equivalent) and all agencies involved in HPAI prevention and control, including departments of animal health, animal production, agricultural extension, diagnostic laboratories and research laboratories, as well as representatives from the private sector and civil society.

11. Country-based disease control options and strategies will have to be defined by each country according to its specific conditions, constraints and possibilities. An effective strategy for a particular country would have to be determined by a number of factors, inter-alia: level of infection; number of species present; migration pathways for wild species; presence of wildlife reservoirs; farming and marketing systems; likelihood of infection or re-infection of regions or countries; international trade; structure of the Animal Health/Veterinary Services; economical-social issues; public health issues, etc. These strategies will have to address the following issues: mechanisms for effective disease surveillance for early detection and reporting; bio-security of poultry farms; movement of poultry and poultry products that may harbor virus, including controls at the interface of infected and uninfected areas; procedures for humane culling of infected and 'at high risk' poultry and safe disposal of carcasses; strategic use of vaccination; changes to industry practices such as control of live bird markets and farm hygiene; and separation of poultry species into geographical areas or compartments

12. **Attendance to National and International Conferences.** The sub-component would also support participation of Veterinary Services officials and project staff in regional and international information exchanges and dissemination on avian influenza.

B. Strengthening Disease Surveillance, Diagnostic Capacity and Virus Research

13. As part of the prevention and preparedness effort for the countries which are free from HPAI and also as part of the control strategy for the HPAI infected countries, the proposed component would support activities to strengthen national Veterinary Services, including the private and associative sectors operating under their authority and to enhance animal disease surveillance, diagnostic and research capabilities. More

specifically, the country project would support the following sub-components: (a) epidemiological surveys; (b) community-based animal disease surveillance and early warning network; (c) enhancing animal diseases information systems; and (d) strengthening applied veterinary research.

B1: Strengthening of Veterinary Services. Once the evaluation of Veterinary Services and related services has been completed, support would be provided to strengthen national Veterinary Services to bring them into line with OIE standards. Such support would include: (i) technical support for strengthening governance and updating legislation; (ii) support for institutional and organizational restructuring and training of staff; and (iii) upgrading of priority infrastructure (limited works, equipment, materials and supplies, technical assistance).

B2: Strengthening Animal Disease Surveillance and Diagnostic Capacity. The sub-component would support the following activities: (a) improving animal health information flow among relevant agencies; (b) detection, reporting and follow-up of reported cases; (c) public and community-based surveillance networks; (d) routine serological surveys and epidemio-surveillance; and (e) improving diagnostic laboratory capacity.

17. **Epidemiological Surveys.** The lack of reliable epidemiological information, and the sound analysis thereof, has hampered the development of rational, targeted disease control measures in many countries. Thus, well-structured epidemiological studies and surveillance programs will be integrated with the disease control measures, which will be then adjusted and improved as new information becomes available. The following country-specific risk-based surveillance strategies would be supported:

- Identification of factors governing infection dynamics;
- Determination of disease transmission pathways along the production and market chains;
- Molecular characterization of HPAI virus strains from birds and animals to determine geographical locations and genetic changes; and
- Evaluation of the level of human exposure in different circumstances to determine risks of human-to-human transmission.

18. Participatory methodologies involving farmers, para-veterinarians, and community workers, will be used extensively, given the fact that the major control targets are the small-scale and semi-commercial poultry production systems. Surveillance programs will be planned and implemented jointly with the public health personnel in accordance with OIE standards and guidelines.

19. **Community-based animal disease surveillance and early warning networks.** The sub-component would support the establishment at the community level of early warning systems to support a robust emergency reporting and feedback system against notifiable diseases. A critical objective of this sub-component will be to improve the commitment of all participants of the “epidemiological surveillance networks”. The project would support training for animal health workers, and treatment of infected animals and reporting procedures. Farmers will receive hands-on training in detection of clinical signs. The project would also provide basic bio-security equipment such as sprayers, protective equipment. Other activities to be funded include:

- Improving animal health information flow among relevant agencies;
- Ring vaccination in buffer zone;
- Detection, reporting and follow-up of reported cases;
- Public Veterinary Surveillance Networks;
- Routine Serological Surveys and Epidemio-Surveillance; and
- Improving Diagnostic Laboratory Capacity.

B.3: Enhancing Animal Diseases Information Systems. The sub-component will support the development of a uniform disease information system in each participating country, as part of their control program to provide better analytical capacity to enable them to participate in global disease information sharing, complying with their obligations as members of OIE, thereby contributing towards progressively better global and regional control and eradication. The system would be linked to rapid and standardized methods of routine analysis of surveillance data, which would demonstrate important changes in the H5N1 situation, and promptly supply this information to field personnel.

B4: Strengthening Applied Veterinary Research. While a range of methodologies and tools are available to control HPAI, there are a number of aspects of the diseases that are not clearly understood. While many of these researchable issues are beyond the scope of this program, it is proposed that some of these issues can be studied immediately and be linked with the national disease control plans. While some of these studies can be conducted by the participating countries directly, others will need international expertise. Technical assistance and competitive grants would be made available for applied research in the following areas:

- Elucidate the role of ducks and backyard indigenous poultry in maintenance and transmission of H5N1 to terrestrial domestic poultry;
- Determine the efficacy of HPAI vaccines in ducks, quails and indigenous backyard poultry;
- Assess the role of vaccination in reducing virus shedding in carrier birds;
- Determine the appropriate strains to be used in each country;
- Determine the role of pigs and other wild birds in transmission of H5N1 to domestic poultry; and
- Identify major risk factors for transmission of HPAI to humans and domestic poultry.

23. It is expected that many of these studies can be included in the national disease control plans and the disease control strategies revised and improved in light of new findings. China has had significant experience in the use of HPAI vaccines in ducks and domestic terrestrial poultry. This experience will be of great help in designing disease control strategies for other countries.

C. Strengthening HPAI Control Programs and Outbreak Containment Plans

24. The component would provide support to countries where the disease is endemic, such as Cambodia, China, Indonesia, Lao and Vietnam and newly infected countries, such as Croatia, Kazakhstan, Romania, Russia and Turkey, for the implementation of HPAI control and eradication measures. These measures included in HPAI Control Programs or Emergency Outbreaks Containment Plans, intended as a rapid mobilization to respond quickly and effectively to HPAI outbreaks during the project life-span, would include guidelines for the rapid activation of physical and human resources.

C1: Targeting virus elimination at the source. The specific HPAI control strategies and programs should include the principle of targeting the disease at the source of infection. This refers predominantly to the smallholder poultry sector and the domestic duck population, a major carrier host reservoir. Wild birds are also implicated as reservoirs of disease, but the program would not address the eradication of avian influenza viruses in avian wildlife. Eradication of the virus source from backyard poultry will be a difficult and long-term task, especially in poor countries with limited resources. With growing evidence that the survival of the virus in smallholder poultry is dependent on replenishment by carrier domestic ducks, strategically targeting virus eradication in domestic ducks may well be the best option for cutting off this source of infection.

26. This sub-component would therefore explore disease control options in domestic ducks, including restructuring of domestic duck farming systems to separate domestic ducks from terrestrial poultry,

strategic culling of domestic ducks, and progressively enhancing flock immunity through vaccination to reduce virus shedding. The short to medium-term task of controlling the disease by reducing virus circulation in the industrial poultry production sector, large-scale breeder units, and medium to small-sized commercial units is feasible. This sub-component would support the following activities:

- destruction of infected and at-risk poultry (stamping out);
- compensation to farmers for the lost animals (culling) at a reasonable market price;
- disposal of carcasses and potentially infective materials in a bio-secure and environmentally acceptable manner;
- enhanced bio-security at poultry farms and associated premises, through bio-containment and bio-exclusion; and
- movement control of birds and products that may be infected, including controls at the interface of infected/non-infected areas and border controls.

C2: Supporting Vaccination Campaigns. This sub-component would support direct vaccination of poultry in countries where the virus is already endemic or institutions and countries where other methods are not feasible. FAO and OIE have made recommendations for the use of OIE-approved HPAI vaccines, and several such vaccines are commercially available. If used in accordance with FAO/OIE recommendations, these vaccines provide excellent protection against clinical disease in chickens by reducing mortality and production losses. Vaccination of poultry also reduces the virus pool contaminating the environment and thereby the risk of infection to poultry and humans. According to current OIE recommendations, HPAI-vaccinated poultry is not excluded from export trade, although specific technical guidelines must be followed to ensure that the vaccine is being applied properly and monitored effectively. The use of vaccination to control HPAI must go in tandem with strategic field surveillance and epidemiological studies to identify virus sources, selection of priority hot spots, imposition of transport bans, and post-vaccination monitoring. Zoning and ring vaccination are important tools, depending on the incidence of virus survival in carrier domestic duck populations. Whereas vaccination of commercial poultry farms can be carried out easily, vaccination of backyard, non-confined poultry poses significant logistical and technical problems. Domestic ducks probably react differently from terrestrial poultry to HPAI vaccination compared with poultry in that they might continue to shed virus on challenge, and therefore remain potentially infective. Serological monitoring using DIVA's principles, and the use of sentinel domestic ducks and chickens are essential measures to monitor vaccinated domestic duck flocks.

28. In countries currently practicing vaccination, the vaccination strategy was adopted mainly because the disease had spread widely throughout the smallholder poultry sector with very high animal mortality. Given the large scale of the infection and the limited capacity to mount large-scale surveillance, stamping out and bio-security measures, vaccination was adopted as an important part of Indonesia's control strategy. There is good evidence to show that this approach has served to reduce significantly losses due to HPAI. This sub-component will support the use of good quality HPAI vaccines produced according to OIE standards and implemented according to FAO/OIE guidelines. The sub-component would also provide capacity building in vaccine quality control at the national level to ensure that vaccines are used with a clearly defined objective and a time-phased exit strategy, linked to strict post-vaccination surveillance and monitoring.

C3: Human safety component. Due to the highly pathogenic nature of the HPAI virus to humans, particularly the Asian H5N1 strain, training of people in contact with the live virus would be supported. This would include field workers involved in identification of the disease, farm workers involved in culling and laboratory workers involved in virus isolation and diagnosis. Resources would be allocated for training and equipment (bio-safety hoods and appropriate personal protective clothing).

C4: Pro-poor disease control programs. In many regions of the world, the smallholder sector has little or no access to animal health services and is highly exposed to the consequences of an HPAI epidemic. In the East Asia region, this sector comprises approximately 200 million poor people in the five countries (Cambodia, Indonesia, Lao PDR, Thailand and Viet Nam) that have been already affected by HPAI. This sub-component would particularly support these low-income groups by:

- Improving animal health services at the village level by means of organizing community-based early warning networks, utilizing the existing pool of para-veterinary village workers (specific guidelines have been issued by OIE to fully integrate these human resources in the Veterinary Services system);
- Increasing farmers' general awareness through simple bio-security guidelines on avian influenza control using publications in local languages;
- Providing grants for direct compensation and/or for cost-sharing of vaccination campaigns, which some countries may not be able to afford through their own budgetary resources; and
- Supporting farmers' groups and/or associations to help improve awareness and dissemination of information.

D. Improving Bio-security in Poultry Production and Trade

31. On a longer term basis, improving bio-security in poultry production and trade is an important strategy to guard against the damaging effects of HPAI, but it is also a complicated intervention requiring understanding of the whole value chain. Moreover, restructuring requires different approaches in different countries by virtue of the differences in their poultry sector infrastructures, marketing characteristics, backyard versus commercial poultry production, and socio-economic impact. This component would support the restructuring of the poultry industry when needed. Restructuring should be seen as a gradual process, affecting the various segments of the sector in different ways and at different rates. Because of these variations, the general principles are outlined below:

- Support for restructuring would always be based on a well-defined socio-economic impact analysis, taking into account the interests of all stakeholders;
- Government commitment with full support from stakeholders is necessary and must follow a long-term strategy; and
- Livelihoods of smallholder poultry farmers, who represent the majority of poultry in many HPAI-affected Asian countries, should be taken into account.

33. In principle, the main activities to be considered under this component are:

- Compartmentalization and Zoning;
- Marketing systems and transport;
- National and international trade;
- Farming systems and practices;
- Segregation of species;
- Breeding stock supplies; and
- Bio-security.

II. HUMAN HEALTH COMPONENT

25. In the public health field, short-and long-term actions need to be taken and an appropriate balance struck between the two. Immediate action is needed in a number of areas, but there is also a longer-term agenda given systemic shortcomings with respect to core public health functions. Work on both the short-

and long-term fronts, therefore, needs to proceed in parallel, and efforts should be made to ensure that short-term responses are consistent with and contribute to proposed longer-term interventions. Setting priorities in both cases is essential. By concentrating the efforts on these dual-use investments would generate benefits during normal times and in a pandemic.

26. Building an effective national public health response would require an enabling environment and the necessary resources to bring proven interventions quickly up to nationwide scale. Country projects under the APL would help to operationalize some elements that are contemplated as part of the global strategic plan prepared by WHO, expanding and intensifying the responses rapidly, taken into account the epidemiological conditions, institutional capacity, and needs and priorities of the participating countries.

27. To prevent an outbreak among humans, initial support would concentrate on a few, but vital areas, including launching or expanding regular seasonal flu vaccinations, which would encourage firms to step up vaccine production capacity, strengthening surveillance and laboratory networks, and stockpiling antivirals. As it is unlikely that the global spread of a pandemic influenza virus could be prevented once it emerges, the emphasis would be on reducing its impact. Several tools would help achieve this aim: (i) year-round surveillance (in those countries with the capacity to do so; in many African and Asian very-low-income and low-capacity countries such surveillance can only be undertaken by global or regional [multi-country] entities, to the extent possible); (ii) effective and accurate methods of diagnosis; (iii) social distance interventions; (iv) vaccines (once they become available); (v) antiviral drugs; and (vi) strengthened medical services. The interventions to be supported under the APL would be based on the countries' epidemiological and programmatic needs, and well-assessed options for meeting them. The interventions would be grouped into three broad categories:

A. Enhancing Public Health Program Planning and Coordination

28. Funding would be available for: (i) establishing inter-sectoral command and control system structures and development of their institutional capacity, including public, private, civil society organization (e.g., religious groups) and the armed forces that often play a key role in most countries in disaster preparedness and response, (ii) identifying crucial gaps in infrastructure and resources, as well as laws and/or statutes which if not corrected may interfere with an effective response, (iii) defining operational priorities, and (iv) ensuring coordination among affected units. Fragmented authority would cripple any country efforts. Support would also be provided for the review and/or preparation of statutory provisions regarding quarantine laws and how they apply in a public health emergency; statutes for mandatory vaccination during an infectious disease emergency; laws and procedures for closing businesses or schools and suspending public meetings during a declared state of emergency; medical volunteer licensure, liability, and compensation for retired and non-medical volunteers; and workman's compensation laws as they apply to health care workers and other essential workers who have taken anti-virals for prophylaxis. In many low-capacity countries in Africa and Asia and elsewhere where the rule of law is either weak and hardly existent or the Government reach over large parts of the economy and society is minimal, the legal instruments mentioned above would be less immediately relevant, but the same objectives would be supported through the funding of other direct means.

29. Additionally, support would be provided for health preparedness and response plan preparation, and to finance test runs of the plan at national level involving regional and local levels, as well as supranational levels. These plans would include activities to protect healthcare workers and other personnel and ensure they can and are willing to continue to do their job in a pandemic.

B. Strengthening of National Public Health Surveillance Systems

30. To assess risks to public health and guide protective measures, information is needed on the extent of influenza infection in animals and humans and on circulating viruses, as well as other priority infectious diseases. National surveillance systems—and in the case of many African and Asian low-capacity countries, as well as very small countries, regional or global surveillance-- must be improved urgently in potentially affected countries. When outbreaks in animals occur, active human case detection should be carried out by a coordinated animal-public health team. This would require the development of epidemiologic intelligence capacity to assess and verify events and rumors, dispatch teams to investigate, and assist regional and local levels in infectious control measures. For many very poor African and other low-capacity countries such surveillance, communication, diagnostic, training, epidemiological and research activities will not be possible to pursue in the short- to medium term and special action will be necessary to ensure local, regional and international coverage of these activities (special analysis and appraisal will be necessary for the capabilities of these countries in these fields in Africa and other countries with very weak or essentially non-existent health care systems).

31. The detection of novel influenza strains is done through clinical and virological surveillance of human and animal influenza disease. There are four main national surveillance areas that need to be strengthened: (i) virologic surveillance to report the number of clinical specimens tested for influenza and other priority infectious diseases and the number of positive results by virus type and sub-type; (ii) surveillance for influenza-like illness (ILI) and other priority infectious diseases to report on the number of patient visits for ILI and other priority infectious diseases by age group and the total number of patient visits each week; (iii) surveillance for influenza and pneumonia, as well as for other priority infectious diseases to report the total deaths related to influenza and other priority infectious diseases; and (iv) regional and local epidemiologists to assesses and report influenza and other priority infectious diseases activity levels in their respective localities. To this end, the proposed APL would support:

B1: Improvement of health information and telecommunication systems

32. This sub-component will strengthen the areas of surveillance, communications, and information technology needed to support countries preparedness and capacity to respond to avian influenza and other infectious disease outbreaks and to fast-track available treatments for the disease. The proposed investments in health information and telecommunications systems would allow the governments to track the course and impact of a pandemic in real time by:

- Reengineering and automation of countries' infectious disease surveillance information systems and protocols to increase the speed and efficiency of collection and analyses of epidemiological and statistical data. This will be done by addressing critical capacity weaknesses and key constraints at national and regional levels of the Health Information and Statistics Systems, to support investigation and diagnosis of the incidence, focalization of the response and systematic and continuous public health interventions.
- Development of health information systems available at the point of service in outpatient, emergency and hospital-based surveillance and sentinel physician networks to support epidemiologists and clinicians in the screening, diagnosis, detection and control of outbreaks, and respective automation of mandatory disease notification and statistical reporting processes, in linkage with the state service statistics and civil registries for cross reference on citizens ID, birth and death registries databases.
- Development of information systems that can be used to track vaccination coverage, track adverse events, and generate reminders for a second dose where more than one vaccination is needed for protection. Integrating such a system with regional or local immunization registries will increase acceptability and usefulness.

- Establishing virtual networks and satellite communications connecting Regional Laboratories with National and International Reference Laboratories allowing for the secure exchange of surveillance information, electronic referral of test requests, and individual patient reports. The communication and connectivity infrastructure would also facilitate the links between clinical units involved in the management of infectious disease patients with the diagnostic support laboratories for confirmation, vaccine safety testing, clinical and epidemiological investigation and drug resistance surveillance.
- Development of national and international infectious diseases data repositories with online analytical processing (OLAP) capacity, allowing for cross reference analysis from multiple databases to report monitoring indicators and surveillance data with real time online information for situation analysis with decision support systems, epidemiological mapping imaging with the use of geographic information systems (GIS) and forecasting models to measure national program outcomes and impact, including data modeling on impact of measures such as “social distancing measures” (e.g., closure of schools and borders), and to guide resource allocation and focalized interventions for the prevention and control of infectious diseases.
- Support the establishment of national, inter-country, border control and regional avian flu and other infectious disease outbreaks web sites for emergency notification to track the disease; to provide preventive measures and preparedness plan with immediate and controlling actions to be taken as an outbreak occurs; diagnostic and emergency response sites and first-line defense against a flu pandemic and other outbreaks; and communications preparedness activities on how to deal with extraordinary excess demand and possibly panic.
- Working with statistical departments and vital statistics units for health statistics mapping using common terminology and health information standards to make data readily available for comparison to national and international benchmarks and accelerate the adoption of electronic medical records.
- Support for the development of a specific web-based tool to supply updated essential information, selected, filtered and commented by a team of professionals specialized in infectious diseases, therapeutics and epidemiology. Compared with broad search engines (e.g., Yahoo!, Google), or to bibliographic databases (e.g., Pubmed/Medline) such system:
 - could be highly specific;
 - the information would be filtered following the criteria of a team of specialized professionals according to scientific criteria, thus containing only relevant and essential information;
 - specific comments on the quality of each reference could complement the abstract of each publication (that is also included in other sources such as Pubmed), thus being an added value of this system, and
 - specific personalized e-alerts could be sent by request, each time a new publication in the field of interest is included in the database.

33. In addition to the direct impact on health professionals working in this specific field, such electronic tool could easily cover additional areas in therapeutics, infectious diseases, emerging of resistances, countries' drug policies, among others. Furthermore, it could be a system to be used as a base in continuous education and training programs.

34. The sub-component would finance the technical assistance required for the development, training in the use of the technology and its analytical capacity, reengineering and implementation of surveillance and M&E information systems, and respective Information Technology (IT) platform (hardware and software), for: (i) the instrumentation of data repository architecture, (ii) data warehouse and OLAP reporting, data flow and inter-sectoral communication and connectivity, (iii) LAN/WAN for data, video and voice on IP, among the participating institutions needed to keep track of the outbreak and country and region response to the epidemic, and (iv) tracking the flow of funds from different sources and to measure the output, outcome

and impact of the implementation of the national action plans. In addition, the sub-component would finance the participation of senior public health specialists that would carry out the identification, retrieval, and selection of published references, as well as the comments on each selected abstract; software professionals in order to maintain the web-base tool and to manage the e-mail personalized subscriptions; access to some medical journals not freely available to the institutions; and promotion of the electronic tool.

B2: Improvements of Laboratory Networks

35. Under this sub-component, financing would be available to upgrade existing national reference laboratories (NRL), including design, renovation and upgrade to bio-safety 03 level laboratory, required for work with virus isolation and micro-neutralization diagnostic procedures for avian influenza. Strengthen local level laboratories of territories at risk, including border areas, and support activities to better connect public health laboratories and epidemiologists along with animal laboratories and veterinary departments. Support would also be provided to strengthen the biomedical waste management systems in the selected laboratories.

B3: Training

36. The sub-component would provide funding to train staff at different levels of the health system in clinical management, epidemiology, laboratory reporting, laboratory bio-safety, molecular techniques applied to diagnosis and molecular epidemiology, environmental surveillance, and management. In addition, it would finance an Apply Epidemiology Training Program focused on modern methods of analytic epidemiology. To improve the coordination between the public health agencies and the veterinary departments, joint training activities would be supported involving epidemiologists, clinicians, laboratory staff, and veterinarians. Using the World Bank Global Distance Learning Network (GDLN) initiatives would be developed to support training activities at national, regional, and local levels, as well as inter-country partnerships.

B4: Studies and Research in Epidemiological Surveillance

37. Research is needed to generate evidence-based information for policy development and adjustments for current and future epidemics. Support would be provided to undertake periodic population-based health analyses, monitoring and evaluation of specific diseases, evaluating the medical and economic consequences of diseases, monitoring the effectiveness of the interventions, and publication of epidemiological analyses, guides and manuals.

38. An effective approach to achieve this objective would be the establishment of a network of sentinel units. Each sentinel unit should include a trained team with epidemiological, therapeutic and clinical background with capacity to design and to carry out small, short-term situation studies in its area of influence. The sentinel units should be electronically connected to conform a network with one or two directive nodes. The epidemiological surveillance network would have the capacity to design, develop and analyze short-term monitoring studies to obtain quick answers to questions arisen from any point of the network/nodes. Examples of questions that could be answered by the surveillance network include:

- How many patients attend primary care centers seeking for relieve of acute pneumonia each day?
- Do treatment practices in affected areas follow the accepted clinical guidelines?
- Which is the profile of reported adverse drug reactions of a new antiretroviral drugs?
- Which is the proportion of patients with resistant to an antiretroviral drugs?

39. Additionally, each sentinel unit could be a reference center on epidemiology, infectious diseases and therapeutics for their region of influence.

40. The sub-component would finance:

- 1) Training of a core team from several nodes and sentinel units that would serve as future trainers;
- 2) Travel expenses (coordinating center and the nodes) in order to design the first interventions/actions;
- 3) Hardware and software to maintain electronic communications within the network;
- 4) Coordinating center team (full-time senior public health professionals and part-time epidemiologists and analysts);
- 5) Regional nodes' teams (full-time senior public health professionals and part-time epidemiologists); and
- 6) Annual meetings/seminars to analyze actions and interventions, and coordinate future actions.

B5: Provision of Technical Assistance

41. This sub-component would finance technical assistance to strengthen capacity and help develop and implement related activities at different levels of the health system.

C. Strengthening Health System Response Capacity

42. **C1: Social Distancing Measures.** The most effective measure to prevent contracting avian influenza would be to limit, as much as possible, contact with the public. Therefore, the project would support the implementation of immediate term responses -- the classic "social distancing measures"--such as school closings, backed up by a well-designed communication strategy. For the longer term, options with industry to improve antiviral and vaccine capacity would need to be explored and supported. The social distancing measures will probably be enforced on advice from health institutions, but health institutions will not be the enforcing group. As a result, financing would be made available for developing guidelines on social distancing measures (e.g., in phases) to operationalize existing or new laws and regulations, for supporting coordination with other sectoral ministries and agencies, and for supporting the Ministries of Health on the caring health personnel and other sectoral staff involved in pandemic response activities. Additional preventive actions that would complement social distancing such as personal hygiene promotion through various communication channels, including handwashing and proper cooking, and distribution and use of masks would be supported, along with increased awareness and promotion of community participation in slowing the spread of the pandemic.

43. **C2: Vaccination.** Under this sub-component, support would be provided for launching or expanding regular seasonal flu vaccination as a vital step to prevent an outbreak among humans. In case of an avian influenza pandemic, when a vaccine becomes available, funding would also be made available for implementing an influenza vaccination program that rapidly administers vaccine to priority groups and monitors vaccine effectiveness and safety. The targeted priority groups would be selected on the basis of several factors: (i) risk of occupational infectious/transmission (e.g., health care workers); (ii) the responsibilities of certain occupations in providing essential public health safety services; (iii) impact of the circulating pandemic virus on various age groups; and (iv) heightened risks for persons with specific conditions. To this end, support would be provided for the rehabilitation, expansion, and equipment of cold storage facilities to strengthen the distribution and storage of vaccines and other perishable medical products. Especially in African and other countries with exceptionally weak health care systems, national immunization structures and management will be targeted to ensure as wide a coverage as possible. In addition, national advance purchase agreements (NAPAs) of vaccines would be considered. This measure would help operationalize a public private partnership on influenza pandemic vaccines and achieve equitable distribution by matching capacity with total pandemic demand. .

44. **C3: Prophylaxis and Drug Therapy.** In a pandemic, vaccine supply levels will change over time. That is, when a pandemic first strikes, vaccine will likely not be ready for distribution. The use of anti-viral drugs, while not a panacea, would be part of the strategy to contain an avian influenza pandemic and to reduce morbidity and mortality. Governments and international agencies, such as WHO, are stockpiling anti-viral drugs. Therefore, support would be provided for the purchase and distribution of anti-viral drugs, determine the susceptibility of the pandemic strain to existing influenza antiviral drugs and target use of available supplies; adoption of measures to avoid inappropriate use to limit the development of antiviral resistance and ensure that this limited resource is used effectively. The objective of anti-viral prophylaxis is to prevent influenza illness and would need to continue throughout the period of exposure in a community. Support would also be provided to monitor patient compliance with treatment regimes and the onset of resistance to anti-viral drugs.

45. Although antiviral drugs such as Tamiflu does not cure flu infection, it has been shown to reduce the severity of the symptoms as well as alleviate complications. The objective of treatment, therefore, is to decrease the consequences of infection. For optimal impact, treatment needs to be started as soon as possible and within 48 hours of the onset of illness. Two classes of drugs are used to prevent and treat influenza infections: adamantines (amantadine and rimantadine) that are effective as prophylaxis; and neuraminidase (NI; oseltamivir and zanamivir) that are also effective for prophylaxis and treatment of susceptible strains. However, the availability of influenza antiviral medications is limited and production cannot be rapidly expanded. Therefore, planning by health agencies is needed to assure effective use of available drugs. To this end, support would be provided for developing guidelines and educating physicians, nurses, and other health personnel before and during the pandemic to promote effective use of these drugs.

Given the current worldwide shortage of the drug and the limited stock available to the countries, priority would be given to population groups most exposed to immediate risk. Taking into account the situation observed today, country projects would support the use of the anti-viral drugs for: (i) post-exposure: at an early stage, when isolated cases or small outbreaks are occurring, anti-viral drugs can be given to persons known to have been in close and unprotected contact with suspected or confirmed cases, and workers at risk of occupational exposure; and (ii) extended prophylaxis: should avian influenza reach the pandemic stage, individuals who have a potential continued exposure to avian influenza because of their work would be offered either short term post-exposure prophylaxis (5-7 days following exposure) or a course of extended prophylaxis depending on the relative risk of exposure (on a daily basis for up to 6 weeks); and (iii) treatment: in symptomatic patients suspected of having avian influenza, the current recommendation for Tamiflu administration is 275mg. capsules a day for 5 days.

As the situation is evolving rapidly, adjustments to the above arrangements would be considered in order to take into account: (i) an increasing number of countries that might be granted the sub-license to manufacture anti-viral drugs, reducing the shortage of the medication; (ii) more accurate information on the actual avian influenza threat; and (iii) better appreciation of when a specific flu vaccine could be available in large quantities.

46. **C4: Medical Services.** Except for very poor countries in Africa and elsewhere where basic health care structures hardly exist and where direct international, regional or bilateral support will be needed, for which IDA recurrent costs support will be provided, addition, assistance would be provided to the health care system for preparedness planning to provide optimal medical care and maintain essential community services. Strengthened clinical care capacity could be achieved through financing plans for establishing specialized units in selected hospitals (to the extent that these exist in very poor countries), treatment guidelines, and hospital infection control guidelines. Also, strategies would be developed to increase hospital bed availability, including deferring elective procedures, more stringent triage for admission, and earlier discharge with follow-up by home health care personnel. As an influenza pandemic will place a

substantial burden on inpatient and outpatient health care services, in IBRD and middle-income countries support would be provided under the APL to rehabilitate and equip selected health facilities for the delivery of critical medical services and to cope with increased demand of services posed by the pandemic, develop intra-hospital infection control measures, including antibiotic stocks, mobilize additional health personnel, including in some countries local and international medical non-governmental organizations, training or health personnel, provide drugs, vaccines, and other medical inputs, diagnostic reagents, including kits, and cover other operational expenses such as those related to mobilization of health teams, and technical assistance. Additionally, support would be provided to improve access to information and scientific knowledge using knowledge management tools, including the review and synthesis of scientific information for distribution to the public health community, and undertake applied and clinical research..

47. Support would be provided to help establish health care facilities in non-traditional sites to help address temporary surge needs. As not all ill persons will require hospital care, but many need other support services, strategies would be developed to provide home health care, delivery of prescription drugs, and meals to infected individuals. Local planning would be needed to address the delivery of these and other essential functions such as police, fire and utility services.

48. Each country project proposed for inclusion in the program would have to justify the country's priority areas of intervention; project components; coverage objectives; input, output and impact indicators; estimated costs and financing sources; financial management and administrative scheme; the monitoring and evaluation system; and project management and implementation arrangements.

III. PUBLIC AWARENESS AND INFORMATION COMPONENT

49. The component is designed to safeguard human health, in particular for extension staff, animal health workers, poultry producers and their families, by improving public awareness and information. It would have two sub-components:

A. Capacity Building

50. The development of a strong, sustainable human resource base is one of the most important objectives of country-specific disease control strategies. Among the affected countries there is a great variation in capacity to deal with serious outbreaks of infectious disease, and therefore capacity building efforts need to be tailored to specific circumstances prevailing in each country. This sub-component would support the needs assessment of Veterinary Services (OIE audit of quality of Veterinary Services) and livestock extension staff and health workers at the central and local levels and the preparation of training programs and materials; the training of trainers (TOT) and the training of farmers in animal health and husbandry and of health workers in better identifying symptoms and providing recommendations to the public in control measures. Capacity would involve animal health governance and policies and institutional strengthening and human and physical resource development. The governance and policy aspects would be supported by the global and regional service centers established by OIE and FAO. On the institutional side, training would be supported in various aspects of policy development and economic impact assessment to include poultry sector restructuring, compartmentalization and zoning, compensations and emergency preparedness planning. At the technical level this will include disease detection, laboratory diagnosis, risk-based surveillance, risk analysis, vaccine quality control, vaccination delivery and monitoring, and bio-security. On the physical side, laboratory diagnostic and surveillance capacity will be strengthened by upgrading equipment and disease information systems.

B. Information and Communication Services

B1: Communication preparedness

51. Activities include developing and testing messages and materials to be used in the event of a pandemic or emerging infectious disease outbreak, and further enhancing the infrastructure to disseminate information from national to state and local levels and between the public and private sectors. Communication activities will support cost effective and sustainable methods such as marketing of “handwashing” through various channels through the delivery of handwashing messages via mass media, counseling, schools, etc and integrated into Avian Flu specific interventions as well as ongoing outreach activities of ministries and sectors, especially ministries of health, education, agriculture, and transport. Support would be provided for information and communication activities to increase the attention and commitment of government, private sector, and civil society organizations, and to raise awareness, knowledge and understanding among the general population about the risk and potential impact of the pandemic and to develop multi-sectoral strategies to address it. In some countries, especially in Africa, community mobilization would take place through civil society institutions (e.g., religious groups and tribal leaders) that reach the local population, particularly in rural areas. In addition, support would be provided for the development and distribution of basic communication materials (such as question and answer sheets and fact sheets) on influenza, influenza vaccine, antiviral agents, and other relevant topics; general preventive measures such as “dos” and “donts” for the general public; information and guidelines for the health care providers; training modules (web-based, printed, and video); presentations, slide sets, videos, and documentaries; and symposia on surveillance, treatment and prophylaxis. In addition, support would be provided to strengthen networks of communication offices, as well as mechanisms to increase coordination and consistency of messages among risk communication managers.

B2: Collaboration with stakeholders

52. The multi-dimensional problems associated with HPAI infection necessitate collaboration from a wide range of stakeholders within each country, which has to be supported by broad communications and information campaigns to improved public awareness. The major stakeholders include various ministries (Planning, Finance, Agriculture, Health, Road and Transport, livestock departments, veterinary departments, national research institutions and diagnostic laboratories), NGOs and civil society organizations, private sector companies and associations (e.g. large poultry production companies, farmers’ associations, veterinarians and farmer involvement at the grass roots level). The sub-component would support activities designed to improve the effective coordination and collaboration among these stakeholders.

B3: Developing Pilot Models for Community-based Rapid Communication

53. This sub-component would support the development and implementation of training courses in communications methodology for extension and veterinary staff as well as health workers at the central and local levels. It will include TOR programs, the preparation and dissemination of information materials, and the provision of communications and information equipment for use at the local and central levels.

IV. IMPLEMENTATION SUPPORT AND MONITORING AND EVALUATION COMPONENT

54. The program would support the establishment and strengthening of public structures for the coordination and management of the individual country projects, including: central and provincial (decentralized) arrangements for coordination of activities, financial management and procurement.

A. Project Management

55. This sub-component would support costs associated with project coordination. National Steering Committees for Avian Influenza Control or similar committees already working on these issues or created in the past to handle emergencies could be reactivated in each participating country to provide general policies and guidelines for implementation of project specific projects. The Committee/s is to comprise human health and veterinary agencies tasked to oversee AI control and eradication operations. To ensure effective operation of the National Steering Committee, the Committee should be chaired by a high level official (Minister's level) of a central ministry or a Deputy Prime Minister. The committees will also be responsible for reviewing annual work plans and ensure coordination and linkages across relevant agencies and international partners.

56. Existing coordination structures operating under Bank-financed operations in the agriculture/health sectors will be entrusted with coordination of project activities, as well as fiduciary tasks of procurement and financial management. The relevant structures will be strengthened to form a Program Unit, by the recruitment of additional staff responsible for overall administration, procurement, and financial management. Agreement is to be reached at the individual country level to second to the Program Unit one senior officer from relevant agriculture/animal health/human health departments of relevant ministries. These officers are to be appointed as Project coordinators in charge of the respective component for which their line agency is responsible. The Project Coordinators, together with the additional staff to be recruited for overall administration, procurement, and financial management, will form the Program Unit.

57. The Program Unit, under the overall direction of the Committee, will be responsible for coordinating with relevant government departments to guide and monitor project implementation at the central and local levels. The relevant government department will be responsible for the preparation of annual work programs (WP) and budgets as well as quarterly and annual project management reports (PMRs). The Program Unit will be responsible for consolidating the annual work plans and budgets for submission to their relevant ministries and the Bank. At the local level, implementation would be the direct responsibility of each regional/provincial agricultural/health authority. Small coordination units should be established at the local level comprising officials from health/agriculture to work under the supervision and guidance of the central Program Unit.

B. Monitoring and Evaluation (M&E)

B1: Training

58. This sub-component would support training in monitoring and evaluation at all administrative levels, mid-term evaluation workshop, and development of an action plan for M&E and replication of successful models. It would support the following activities:

- Training in M&E;
- Developing a M&E plan for the specific country projects;
- Implementation of baseline studies;
- Mid-Term evaluation of the project;
- On-going participatory monitoring and evaluation; and
- Final project evaluation.

B2: Program Monitoring and Impact Evaluation

59. Support would be provided to develop project monitoring and impact evaluation assessments. Two types of M&E are envisaged:

B2(i) Monitoring of project implementation. This is a function of the Program Unit, which would collect relevant data from line ministries and other implementation agencies and then compile them into semi-annual or quarterly progress reports (as the case may be) focusing on status of physical implementation by component, use of project funds and monitoring indicators. Specific surveys can be conducted to obtain data for this purpose. Annual expenditure reviews would be conducted to assess government commitment to strengthen the public health functions as measured by budgetary allocations and their distribution by activity.

B2(ii) Impact evaluation. The aim of evaluation is to find out whether the interventions are effective or the program is having the desired impact. The evaluation will include both quantitative and qualitative aspects and be conducted on a yearly basis. The quantitative aspects will rely on new information systems and surveys implemented as part of the various components of the project, currently existing data sources, and primary evaluative data collection efforts. The goal of the qualitative aspect of the evaluation will be to document perceptions of program managers, staff, patients, and local and national leaders. Qualitative information will be collected using site-visit interviews, focus groups, and respondent surveys.

Annex 6a: Implementation Arrangements

GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC PREPAREDNESS AND RESPONSE

1. The Program will be implemented by the regular government structures. However, specific institutional and implementation arrangements will vary from country to country, designed to ensure the efficient use and prompt disbursement of available resources through the respective loans/credits/grants. National Steering Committees for Avian Influenza Control or other existing committees established to deal with emergencies are proposed in each participating country to provide general policies and guidelines for Program implementation. The Committees are to comprise human health and veterinary agencies tasked to oversee AI control and eradication operations. To ensure effective operation of the National Steering Committee, the Committee should be chaired by a high level official (Minister's level) of a central ministry or a Deputy Prime Minister. The committees will also be responsible for reviewing annual work plans and ensure coordination and linkages across relevant agencies and international partners.
2. Although each country will need to adapt implementation/institutional arrangements to fit their specific situation, it is proposed that in countries where the Bank is financing either an agriculture/livestock or a health project, existing coordination structures within ministries/agencies will be entrusted with coordination of project activities, as well as fiduciary tasks of procurement and financial management. The relevant structures will be strengthened to form a Program Unit, through the recruitment of additional staff responsible for overall administration, procurement, and financial management of the Program. Agreement is to be reached at the individual country level to second to these structures one senior officer from relevant agriculture/animal health/human health departments of relevant ministries. These officers are to be appointed as Project coordinators in charge of the respective component for which their line agency is responsible. The Project Coordinators, together with the additional staff to be recruited for overall administration, procurement, and financial management of the Program, will form the Program Unit.
3. The coordination structures, under the overall direction of the Committee/s, will be responsible for coordinating with relevant government departments to guide and monitor project implementation at the central and local levels. The relevant government department will be responsible for the preparation of annual work programs and budgets as well as quarterly and annual project management reports. The Program Unit will be responsible for consolidating the annual work plans and budgets for submission to their relevant ministries and the Bank.
4. At the local level, implementation would be the direct responsibility of each regional/provincial agricultural/health authority. Small coordination units should be established at the local level comprising officials from health/agriculture to work under the supervision and guidance of the central Program Unit.
5. A generic Project Operational Manual (POM) is to be prepared to facilitate the management and implementation of the Program. The POM can be adjusted to meet the needs of individual countries.

**Annex 6b: Definition, Mandate and Complementarities of the Animal Health International
Leading Technical Agencies (OIE and FAO and the HPAI Crisis)**

**GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC
PREPAREDNESS AND RESPONSE**

The World Organization for Animal Health (OIE)

1. The OIE is the World Organization for Animal Health (its historic acronym has been maintained). The organization was created in 1924 (before the UN). It is ruled by an International Agreement to which 167 member countries have subscribed. Representatives from member countries are designated by their government and they are in general those responsible for the national Veterinary Services in charge of preparing and implementing national policies and legislation for the control of animal diseases, including those transmissible to humans. The main mandates of the OIE are the transparency of the animal diseases status in the world based on the obligation of member countries to report them to OIE; the continuous update of animal diseases control methods; and the related sanitary governance and policies. These methods are subject to international norms submitted to the member countries General Assembly for their adoption. These norms are then recognized by WTO in order to guarantee the sanitary safety of trade for animal and their products. The OIE manage five permanent regional representations and three sub-regional offices. The OIE has established official collaborations with the World Bank (see below), WHO (GLEWS together with FAO), FAO (GF-TADs; OFFLU; GLEWS), and many other public and private organizations.

2. The Bank has established a Global Program and Partnership (GPP) to strengthen its collaboration with the OIE and to support the OIE Global Governance Centre through a development grant facility (DGF) serving as a catalytic financial support to the World Fund for Animal Health recently established by OIE. Several donors and major multi-national agro-industry companies have already expressed their commitment to the World Fund for Animal Health. The objective of the GPP is to support: (i) the coordinating roles of OIE for global and regional animal health governance and policies; (ii) the strengthening of the global animal health governance system including the collaboration with the human health services and the role of the private sector; (iii) the OIE quality assessment guidelines and tools for national Veterinary Services; and (iv) the solidarity, capacity building, and scientific and technical efforts provided by OIE towards its developing country members.

3. The main components of the GPP are: (a) a Global Partnership component for the promotion of the global public good component of Veterinary Services, by raising international awareness, sensitizing donors and policy-makers, facilitating stakeholder dialogue, consolidating existing alliances, developing public-private partnerships, and attracting financiers; (b) a Global Insurance component, for (i) a cost/benefits analysis of an acceptable global system of surveillance, for an increased early detection and rapid response at national, regional, and international levels against major accidental or intentional sanitary risks; which could lead to (ii) a feasibility study and eventual establishment of a global insurance funds for compensation associated with control methods of emerging and re-emerging diseases of animal origin, to encourage reporting and facilitate early detection and rapid response; (c) a Regional component, for (i) the development of regional models of surveillance, early detection and rapid response, for a better cooperation of national veterinary and public health services at regional level, starting with the HPAI in Asia and high risk regions in FY06; (ii) regional capacity building workshops, using these regional models as well as existing products (methodology for the assessment of the quality of Veterinary Services; pedagogical modules) to enhance the capacity of veterinary and public health services (including the private and associative sectors operating under their control) at regional and national levels;

and (iii) the implementation of these regional models in five regions, starting with the Asia region for FY06 (with the HPAI crisis), and progressively extending to Africa (with the ALive GPP), Eastern Europe, Middle East, Central and South America in FY07 and FY08; (d) a Management component, for the support to a coordination unit at OIE and to an independent evaluation at the end of the three-year DGF program (early FY09).

4. Since the beginning of the HPAI crisis, the OIE has: (i) updated the international standards and surveillance guidelines for the safety of international trade of poultry and products; (ii) created a worldwide network of international expertise in partnership with FAO (OFFLU); (iii) developed a proposal for the worldwide governance for veterinary policies; (iv) organized an international conference on Avian Flu control methods (April 2005); and (v) organized regional capacity building through the five OIE regional representations in partnership with FAO and WHO.

The Animal Health Service of the Food and Agriculture Organization (AGAH)

5. Animal health (AH) issues (highly contagious trans-boundary animal diseases, veterinary public health, emerging vector-borne diseases and Veterinary Services organization) are the responsibilities of the AH Service (AGAH) of the Animal Production and Health Division (AGA). AGAH is managed by the Chief Veterinary Officer (CVO) of the FAO and regroups a multi-disciplinary team of specialists (epidemiology, microbiology, laboratory activities, parasitology, and ecology of tick-borne and insect-borne diseases). Using the complementarities of other services of AGA, AGAH addresses the problems of AH with a holistic approach (socio-economic, livestock policy and institutions, interaction between farming systems and the environment, and AH). The EMPRES (Emergency and Prevention Systems) program focuses on the early detection of TADs. Information systems and disease intelligence are key activities for surveillance, risk assessments, forecast, and preparation of strategic control programs. ECTAD (the Emergency Center for TADs) is a centralized structure, designed to insure a central chain of command with regards to strategies for the prevention and control of TADs. ECTAD is under the leadership of the FAO CVO, and regroups the various experts working on animal health, animal production, livestock policy, modeling, GIS, and communication, as well as administrative and financial matters.

6. Since the beginning of the HPAI crisis, ECTAD has set up an HPAI task force, which has been in charge of coordinating and implementing programs at the international (preparation of global strategies; information through website and bulletins, organization of experts meetings, regional and international conferences; etc.), regional (particularly establishment and functioning of networks of national veterinary diagnostic laboratory and epidemio-surveillance teams) and national (strategy design, capacity building, preparation and implementation of field activities). The activities regarding the HPAI crisis have been implemented in strong collaboration with the OIE and under the concept and approaches of the new FAO-OIE GF-TADs initiative.

OIE-FAO Complementarities

7. During the past few years, OIE and FAO have reinforced their collaboration through a Memorandum of Understanding (MoU) based on their complementarities and have: (i) developed global framework (GF-TADs), (ii) co-organized a number of international and regional events, (iii) co-published several articles, and (iv) issued common resolutions and recommendations, as well as conducted joint technical and scientific field missions. It is important to note that their collaboration goes well beyond the emergency response to the HPAI crisis, but paves the way for a future strengthened animal health system needed for the prevention and control of emerging and re-emerging global diseases of animal origin.

8. At National level, **OIE** responsibilities include:
- Trade Issues/SPS
 - AH Code and Guidelines
 - National Official Data Collection and Dissemination
 - Certification
 - OIE AH Information system: Early Warnings and monitoring
 - Veterinary Services Standards
 - Surveillance and Official Reporting
 - Laboratory (methods and Standards)
9. At the National level, AGAH activities include:
- Surveillance and Epidemiological Analysis
 - Contingency Planning, Strategy Development and Emergency Preparedness
 - Good Emergency Management Practices
 - Comprehensive Livestock Sector Development: production, health and policy
 - Improvement of National AH Services and Delivery
 - Laboratories (support, targeted research and epidemiological surveys, technology transfer)
 -
10. At the National level, both organizations are involved in:
- Capacity Building
 - Global Early Warning System
 - Coordinated Response to Emergencies
11. At the global and regional levels, OIE is mandated with ensuring the transparency of the animal diseases status in the world, the continuous update of animal diseases control methods, and the related animal health governance and policies issues. As noted earlier, OIE has recently established a World Fund for Animal Health to guarantee good governance and policies in animal health and to support the OIE-FAO regional quality centers hosted in the OIE regional representations. The latter are in charge of building the capacity of the national Veterinary Services and stakeholders Leaders.
12. At the international level, FAO has recently established the Emergency Center for TADs (ECTAD), a centralized operational center that ensures a central chain of command with regard to strategies for, and implementation of, the prevention and control of TADs. At the regional level, through the FAO-OIE Regional Quality Centers, FAO will be in charge of the technical support to operations, including the technical support to the regional organizations. FAO has developed several Technical Cooperation Programs for HPAI, with the following activities: Sub-regional networks; Training in diagnostic, surveillance strategies; Investigation of carrier status in domestic and wildlife species; and Avian wildlife-poultry interactions. At the national level, FAO has helped prepare several national strategies for HPAI, and its role as the back-stopping technical agency for Avian Flu has already been instrumental in the East Asia and Pacific region.

Global and Regional Activities

13. Based on the Global Strategy for the Progressive Control of HPAI prepared by FAO and OIE, combined with the two institutions' role, mandate, comparative advantages and collaborative arrangements, the following proposed activities and share responsibilities have been agreed upon by OIE and FAO for the implementation of the proposed Global Program for Avian Flu (GPAI):

- (viii) Support to the World Fund for Animal Health, for the OIE global governance center for animal health and the FAO operational center for TADs (ECTAD);
- (ix) Support to OFFLU Network, the new worldwide AI network that will improve collaboration between reference laboratories specialized on AI in animals, coordinated by OIE and FAO and laboratory networks focusing on human influenza coordinated by WHO;
- (x) Support to GLEWS, the joint FAO, OIE and WHO initiative for the prediction of animal diseases including zoonoses, through sharing information, epidemiological analysis and joint field mission whenever needed;
- (xi) Support to OIE-FAO Regional Quality Centers, hosted in OIE Regional Representations and Offices, according to the OIE-FAO agreement under the GF-TADs, for the OIE regional representations and offices to build the capacity of VS and stakeholders leaders and for the technical support to operations (FAO-OIE);
- (xii) Support to Networks (Diagnostic; Surveillance; Economic policy), major FAO initiatives to provide coordinated support for AI surveillance and monitoring including laboratory diagnostic and support to policy and economic analysis for the restructuring of the poultry industries;
- (xiii) Support to Epidemiological Investigations, for the required research at international level for a better understanding of AI epidemiology, in particular the immediate need to investigate the ecological and epidemiological relationships between HPAI virus, wild birds and poultry; and
- (xiv) Support to the preparation of country Operations (FAO back-stopping technical support to countries and donors).

Annex 6c: Definition and Mandate of the World Health Organization

GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC PREPAREDNESS AND RESPONSE

Mission

1. The World Health Organization (WHO) is the United Nations specialized agency for health. It was established on 7 April 1948. WHO's objective, as set out in its Constitution, is the attainment by all peoples of the highest possible levels of health. Health is defined in WHO's Constitution as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

2. To achieve its objective, the principal responsibilities of WHO are: (i) act as the directing and coordinating authority on international health; (ii) establish and maintain effective collaboration with the United Nations, specialized agencies, governmental health administrations, professional groups, and other organizations; (iii) assist Governments upon request in strengthening health services; (iv) furnish technical assistance and in emergencies necessary aid upon the request or acceptance of Governments; (v) establish and maintain such administrative and technical services as may be required, including epidemiological and statistical services; (vi) stimulate and advance work to eradicate epidemic, endemic and other diseases; (vii) promote cooperation among scientific and professional groups which contribute to the advancement of health; (viii) provide information, counsel and assistance in the field of health; (ix) assist in developing an informed public opinion among all peoples on matters of health; and (x) develop, establish and promote international standards with respect to food, biological, pharmaceutical and similar products.

Governance

3. WHO's mandate is carried out by (i) the World Health Assembly; (ii) the Executive Board; and (iii) the Secretariat. The World Health Assembly is the supreme decision-making body for WHO. It generally meets in Geneva in May each year, and is attended by delegates from all 192 Member States. Its main function is to determine the policies of WHO. The Executive Board is composed of 32 members technically qualified in the field of health. The Secretariat of WHO is staffed by some 3,500 health and other experts and support staff, working at headquarters, in the six regional offices, and in countries. WHO is headed by the Director-General, who is appointed by the Health Assembly on the nomination of the Executive Board.

The role of WHO before and during pandemics

4. The objectives and actions are divided into five categories:

1. Planning and Coordination:

5. **Inter-pandemic period, phase 1:** promote development of harmonized global, regional and national influenza pandemic preparedness plans; promote the development of global and national capacity to detect and respond to early reports of new strains; develop strategies and procedures to coordinate the rapid mobilization and deployment of global resources to foci of infection during a pandemic alert period; and improve international response to pandemic influenza (and other emergencies) by developing mechanisms for rapid decision-making and action, establishing inter-sectoral collaboration, and promoting corresponding measures at the national level.

6. **Inter-pandemic period, phase 2:** promote strengthened response capacity to deal with possible human cases; and coordinate development of strategies and guidelines to reduce the risk of human infections.
7. **Pandemic alert period, phase 3:** provide guidance to national authorities regarding interventions to detect and respond to human cases.
8. **Pandemic alert period, phase 4:** coordinate global and national efforts to delay or contain the spread of human infection within limited foci, and coordinate assessments of national needs and resource mobilization among affected and unaffected countries.
9. **Pandemic alert period, phase 5:** coordinate maximum global efforts to delay or possibly avert a pandemic.
10. **Pandemic alert period, phase 6:** provide global leadership and coordination to minimize morbidity and mortality, preserve health care systems effectiveness, minimize societal disruptions and minimize the economic impact of a pandemic, promote rational access to finite resources, including vaccines and other pharmaceutical supplies (when available), support evaluation of the effectiveness of specific responses and interventions, establish and maintain trust across all agencies and organizations and with the public, through a commitment to transparency and credible actions, and draw lessons from the ongoing pandemic response in order to improve response strategy and inform future planning..

2. **Situation Monitoring and Assessment**

11. **Inter-pandemic period, phase 1:** coordinate global surveillance networks that monitor trends of human infection with seasonal strains, and provide early warning of new strains in humans and animals (in collaboration with other partners and organizations such as FAO and OIE); promote the development of global and national capacity to assess risks to humans from animals and other possible sources of human infection with new strains; and promote the development of national plans for ongoing assessments of impact and resource needs during the pandemic period.
12. **Inter-pandemic period, phase 2:** obtain and disseminate information on spread in animals and interspecies transfers; support early detection of human infection; and collaborate in assessment of the risk of transmission from animals to humans, facilitate the availability of diagnostic reagents to diagnose human infections.
13. **Pandemic alert period, phase 3:** coordinate confirmation of human infections, provide assistance to national authorities if needed in describing the epidemiological, virological and clinical features of infection and possible sources, and in assessing the extent of human-to-human transmission, enhance alertness for additional cases, and enhance development or adjustment of diagnostic reagents and vaccines.
14. **Pandemic alert period, phase 4:** coordinate assessments of the extent of human-to-human transmission, describe the epidemiological, virological and clinical features of infection and possible source, and disseminate this information as needed for surveillance and control measures, and enhance development or adjustment of diagnostic reagents and vaccines.
15. **Pandemic alert period, phase 5:** determine pandemic risk and spread of disease, update description of the epidemiological, virological and clinical features of infection and possible source, and disseminate this information as needed for surveillance and control measures, and provide guidance on national monitoring of health care system needs.

16. **Pandemic alert period, phase 6:** monitor the epidemiological, virological and clinical features and the course and impact of the pandemic at the global level, in order to forecast trends and optimize the use of finite resources, and assess the effectiveness of interventions used to date in order to guide future actions.

3. Prevention and Containment (non-pharmaceutical public health interventions, vaccines, and anti-virals)

17. **Inter-pandemic period, phase 1:** ensure the availability of up-to-date, evidence-based recommendations on potential interventions; promote the increased use of seasonal influenza vaccine, consistent with WHO recommendations; coordinate efforts to resolve impediments to the development, production and access to pandemic vaccines; and assess the needs and develop strategies and guidelines for development, deployment and use of stockpiles.

18. **Inter-pandemic period, phase 2:** reduce the risk of human infection through exposure to animal viruses, assess the susceptibility of animal strains to anti-viral drugs, reduce the risk of co-infection in humans and thereby minimize the opportunities for virus reassortment, and consider the development of a human vaccine against the new strain.

19. **Pandemic alert period, phase 3:** provide guidance in implementing measures to prevent or reduce human-to-human spread, assess the potential for use of anti-virals in current and later phases, and facilitate planning for pandemic vaccine development.

20. **Pandemic alert period, phase 4:** support and evaluate global and national efforts to delay or contain the spread of human infection within limited foci, assess susceptibility of new strain and availability of anti-virals, and deploy from global stockpile when appropriate, promote development and prepare for production of pandemic vaccine, and deploy pandemic vaccines to foci of disease, if appropriate and available.

21. **Pandemic alert period, phase 5:** mobilize and focus global resources to contain/control outbreaks, coordinate efforts to limit morbidity and mortality, and assess impact of control measures.

22. **Pandemic alert period, phase 6:** mitigate impact in affected countries, evaluate and update recommended interventions, and promote maximum production and rational use of pharmaceuticals, e.g., vaccines and anti-virals.

4. Health System Response

23. **Inter-pandemic period, phase 1:** promote contingency planning by health care systems for responses to an influenza pandemic.

24. **Inter-pandemic period, phase 2:** promote national efforts to ensure early diagnosis of human cases and appropriate health system response.

25. **Pandemic alert period, phase 3:** promote increased national efforts in recognition and diagnosis of cases and in implementing contingency plans for use of health-care resources, provide guidance for clinical care and infection control, and provide guidance on appropriate handling of specimens, including biosafety and security issues.

26. **Pandemic alert period, phase 4:** promote efforts by national authorities to use health care capacity optimally if additional cases occur provide guidance on clinical triage and treatment, and enhance appropriate infection control and biosafety procedures in community primary and secondary care.

27. **Pandemic alert period, phase 5:** promote efforts by national authorities to use health care capacity optimally if additional cases occur, including providing guidance on clinical triage, treatment, and infection control procedures, and provide guidance on appropriate handling of specimens, including biosafety and security issues.

28. **Pandemic alert period, phase 6:** provide guidance on ways to optimize patient care with limited resources.

5. Communications

29. **Inter-pandemic period, phase 1:** promote the establishment of mechanisms for routine and emergency communication within and among health authorities and other appropriate partners at the international, national and sub-national levels, and with the public; promote the establishment of national risk communication strategies and capabilities appropriate to each phase, and establish a collaborative working relationship with news media regarding epidemic response.

30. **Inter-pandemic period, phase 2:** ensure rapid global sharing of appropriate technical information; and ensure that mechanisms exist for coordinating communications with FAO and OIE, and other international partners.

31. **Pandemic alert period, phase 3:** communicate transparently with the public regarding possible outbreak progression and contingencies to be expected, and ensure rapid sharing of appropriate information among health authorities, other partners and the public, including what is known and what is unknown.

32. **Pandemic alert period, phase 4:** ensure rapid sharing of appropriate information among health authorities, other international agencies and other partners, including what is known and what is unknown, and prepare the public and partners for a possible rapid progression of events and possible contingency measures.

33. **Pandemic alert period, phase 5:** prepare national authorities, other partners, and the public for a likely rapid progression of events, additional contingency measures, and disruptions to normal life, ensure rapid sharing of appropriate information among health authorities, other partners and the public, including what is known and what is unknown.

34. **Pandemic alert period, phase 6:** share appropriate information rapidly among health authorities, other partners and the public, serve as official global source and focal point for credible information related to the pandemic.

Annex 7: Emergency Recovery Assistance Procedures

GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC PREPAREDNESS AND RESPONSE

1. As described in OP 8.50 for Emergency Recovery Assistance (ERA), in addition to emergency assistance, the Bank may support operations for prevention and mitigation in countries prone to specific types of emergencies. Such operations could assist in: (a) developing a national strategy, (b) establishing an adequate institutional and regulatory framework, (c) carrying out studies of vulnerability and risk assessment, (d) reinforcing vulnerable structures, and (e) acquiring hazard-reduction technology.
2. Given the threat that the Avian Influenza may pose on the economic and social fabric of countries, as well as on the health of the population because of the risk of a global influenza pandemic, the proposed APL would be financed through loans, credits and grants approved following ERA procedures.
3. **Procurement.** Procurement under a country project would be carried out in accordance with Bank's "Guidelines: Procurement Under IBRD Loans and IDA Credits" dated May 2004, and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004, and the provisions stipulated in the Legal Agreement. Agreements covering procurement methods, thresholds, and other conditionality would be consistent with ERA assistance guidelines and determined for each country according to its capacity and experience with Bank procurement. Procurement agreements would be appraised and would be detailed in a procurement annex to each country's project.
4. The activities covered in a typical country project would be implemented on the basis of annual work plans to allow for needed flexibility in adjusting project work to account for in-country experience and the lessons from the implementation by other countries participating in the multi country program. As a result, the following approach to procurement would be adopted:

a) General procurement arrangements for the country project:

Procurement Methods. An annual Procurement Plan (PP) would be prepared along with the annual work program. The PP for **each year** will be submitted by each Government to the Bank for approval before the end of the previous year and would use a pre-defined standard format which would list as a minimum: (i) works, goods and services to be procured during the following calendar or fiscal year, as the case may be; (ii) their value; (iii) the method of procurement; and (iv) the timetable for carrying out the procurement. At the time of approving the annual work program, the Bank would agree on the consistency with the application of the Bank procurement guidelines to the specific procurement lots expected during the year and their methods of procurement. If needed, the plan could be revised and re-submitted. A format for a typical plan would be agreed at the negotiation of each country project. The PP for the **first year** of each country project would be evaluated as part of project appraisal. Any advance procurement actions that will facilitate early decision on procurement activities will be undertaken on a need basis. Any advance procurement actions that will facilitate early decision on procurement activities will be undertaken on a need basis.

National Advance Purchase Agreements (NAPAs) for drugs and vaccines. They would be supported under the GPAI to address preparedness planning. It is expected that when all country plans and pandemic needs for existing drugs and future vaccines are evaluated, they will far exceed total global production capacity. Setting NAPAs in country strategies for limited amounts for essential purposes, would help to achieve equitable distribution by matching capacity with total

pandemic demand. It is imperative for countries to develop credible forecasts identifying drug needs for emergency containment activities and future vaccine needs for prevention. A global mechanism that might pool credible demand into guaranteed purchases could be structured to provide the market motivation needed to increase investments in the development and production scale-up of needed drugs and vaccines. In this context, it would be important that countries begin as soon as possible to strengthen the delivery systems and containment policies, and increase the use of flu vaccines in the inter-pandemic years. Including NAPAs in all country strategies and developing global demand-pooling and purchasing mechanisms would help to ensure more equitable access by providing the incentives to expand capacity to meet forecasted demand. There is a crucial need, however, to separate national plans and NAPAs for current drugs from those for new vaccines. WHO will have an important role in evaluating the demand, particularly for current drug needs. This would ensure that shortfalls in some countries are balanced with supply capacity. As part of preparedness and enhancing the capacity of the manufacturers (vaccines and drugs), it may be necessary to have discussions with individual manufacturers holding copy rights and those that may need licensing authorization. The Bank, WHO and WTO will coordinate on this effort. In addition, measures should be adopted to expedite drug registration procedures at the country level and to guarantee good manufacturing practices to ensure the efficacy and safety of drugs and vaccines.

Country Assessments. Each country project loan/credit/grant agreement would define the appropriate threshold for International Competitive Bidding (ICB), National Competitive Bidding (NCB) or shopping in accordance with ERA guidelines. Thresholds for project procurement methods and prior review requirements would be set on the basis of the Bank's assessment of the capacity of the Unit in charge of procurement, the estimated risks of corruption in the country and the country's capacity of construction and manufacturing industries, consistent with the latest Country Procurement Assessment Report (CPAR). The same would apply for the procurement methods for consultants.

Implementing Agency Assessments. The Bank would carry out a procurement capacity assessment for each Program Unit to assess its capacity to use Bank procurement guidelines, procurement risks and recommend ways to reduce the risks. This assessment will include a detailed evaluation of procurement and supply management chain to be able to address arrangements for satisfactory distribution of drugs and commodities at required levels (federal, state and community). From such an assessment the Program Unit would be classified in one of three types of risk categories (A, B or C) corresponding to low, average or high risk. The annual PP would define thresholds for prior review appropriate to the category. Such thresholds would be defined to minimize prior review as appropriate to the level of risk.

- b) As projects would have decentralized implementation arrangements, and to help the Bank carry out post-review of procurement actions, consultants would be hired as a cost to the project to carry out annual procurement audits of a sample of contracts, under terms of reference acceptable to the Bank.
- c) For several years, a number of specialized UN and bilateral agencies operating in the Region have supported various country agencies in the procurement of drugs, vaccines, specialized test equipment and supplies, and other materials. Using this type of assistance may be considered as part of a country project's procurement arrangements when advantageous. In accordance with the Procurement Guidelines section 3.9, the country projects may include the use of specialized agencies of the United Nations (WHO, FAO and UNICEF), as suppliers of goods (mainly for drugs and vaccines) following their own procedures of procurement. In addition, it is foreseen the use of UNDP as procurement agent in some countries, on a single-source selection basis). This use of UN agencies as agents will have to meet the requirements of Sections 3.10 and 3.15 of the Procurement Guidelines. In all cases, the procurement agents will follow the Bank's procurement guidelines under the standard agreement between the Bank and the agency.

Procurement under Emergency Assistance Component

5. Under ERA procedures, the country projects would finance only a positive list of imports identified as necessary to a well defined preparedness and response program. In case of a declared global influenza pandemic, which would trigger disbursement conditions for critical imports, support would be provided for the procurement of a positive list of critical imports. These imports may be procured under Modified International Competitive Bidding (MICB), according to paragraphs 2.66 and 2.67 of the Procurement Guidelines. Also, commonly traded commodities may be procured through organized international commodity markets or other channels of competitive procurement acceptable to the Bank, in accordance with the provisions of paragraph 2.68 of the Guidelines.

6. The positive list of critical inputs made by the participating country or purchased by the country from the private sector, based on historical imports during national emergencies, would include:

- Construction materials
- Transport equipment
- Agricultural equipment and inputs
- Pharmaceuticals and vaccines
- Medical supplies and equipment
- Petroleum and fuel products
- Construction equipment and industrial machinery
- Communication equipment, supplies, and campaigns
- Food and water containers

7. Disbursements can be made for up to 100 percent of import costs. No more than 20 percent of loan/credit/grants proceeds may be used for retroactive financing of expenditures, and the payments must have been made after the emergency occurred and within four months prior to the expected date of loan/credit/grant signing.

8. **Financial Management and Flow of Funds.** Each country will have a separate loan/credit/grant account with the Bank, and each Program Unit will be responsible for assuring that the country's project establishes and maintains: (i) adequate accounting systems and procedures; (ii) funds flow mechanisms including timely disbursements to its suppliers; and (iii) appropriate arrangements for regular financial audits. These responsibilities will be specified in country loan/credit/grant documents. As most Program Units will have been only recently formed, and will not have established accounting and financial management procedures, they will have the option of contracting with local accounting and financial management firms for these services while building their own capacity for doing so. Draft terms of reference for this service will be furnished to Program Units. Participating countries will be evaluated as to their compliance with Bank financial management standards at the preparation and launching stages, as well as on supervision missions during project implementation.

9. **Disbursement Arrangements.** Each Borrower will establish its own Special Account in a bank, acceptable to the Bank, to receive Bank/IDA/grant funds. Disbursements will be made on the basis of Statements of Expenditure (SOEs), and/or (ii) FMRs. For large expenditures, the Program Units could request that the Bank's Disbursements Division process a direct payment to the supplier from the loan or credit account.

10. **Quick Disbursable Funds.** In the event of a global influenza pandemic, the countries could obtain quick disbursable funds. The funds would be disbursed against a positive list of imports, identified as critical following emergency events. This component would have as disbursement condition the

declaration of a national emergency. Upon declaration of an emergency, the country would submit to the Bank/IDA an initial recovery plan documenting the disaster declaration, the related budget appropriation and the proposed use of the funds. The country will keep the Bank/IDA informed of updates in the plan as the emergency operation unfolds.

11. **Cash Grants.** Under this provision, namely -- namely pure cash transfers -- will focus on the avian influenza-affected individuals and families who have lost their capacity to earn a livelihood due to the loss of infected birds. The implementation plan will be based on community participation, where community organizations will play a key role in identifying beneficiaries. A list of beneficiaries will be prepared and used for the implementation of cash transfers. Appropriate procedures on the uses and controls of cash grants by the community organizations would be implemented, as appropriate. With respect to cash transfers/grants, an adequate operational review should be in place to confirm the validity and legitimacy of the transfers. In addition, the external auditors should give an opinion on the reasonableness of the grants and compensation.

12. **Internal controls.** Minimum internal controls, including internal audit, should be available prior to flow of funds. In this regard, the recipient country will need to engage the necessary expertise, systems and capacity, or outsource the functions, should this not be available at the outset. Controls over inventories of drugs, vaccines, medical equipment, and other sensitive and/or expensive assets will be especially important for these projects. The Bank will assess the control environment of the Program Unit and implementing agencies during project preparation, and by the auditors in their annual audit. Significant weaknesses identified will require prompt resolution. Although project accounting will in most (or all) cases be on the cash basis, the maintenance of a detailed asset/inventories register will be critical for project internal control.

13. **Financial Reporting.** Maximum use will be made of a country's existing practices and reporting formats providing that they meet Bank standards. For project monitoring purposes, financial monitoring reports will be required at least semi-annually. To the extent possible, common reporting formats will be agreed between the government and all financiers, so as to reduce the administrative burden on the Program Units.

14. **Financial Audits.** Pre-selection of independent auditors for the life of the country project will be required. An audit report prepared in accordance with Bank guidelines will be required to be submitted to the Bank six months following the end of the project's fiscal year-end. Where disbursement arrangements are more flexible, more frequent audits, or more detailed reviews by Bank financial management staff, will be considered.

15. **Country-specific project documentation (PADs, Technical Annexes).** These documents will provide more detailed information as to the particular financial management arrangements, consistent with Bank and regional specific requirements, to be put in place in each country.

Annex 8: Economic Analysis

GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC PREPAREDNESS AND RESPONSE

1. Evidence shows that the H5N1 strain of Highly Pathogenic Avian Influenza (HPAI) is now endemic in parts of South-east Asia, where Cambodia, Indonesia, Laos, Thailand and Indonesia are the worst-affected countries. The continuing outbreaks that began in late 2003 and early 2004 have been disastrous for the poultry industry in the region; by mid-2005, more than 140 million birds had died or been destroyed and losses to the poultry industry are estimated to be in excess of US\$10 billion.
2. Despite control measures, the disease continues to spread to raise serious public health concerns at the global level. The major world animal and human health authorities (FAO, OIE and WHO) are collaborating closely on a global strategy and regional and country-specific plans, the overall goal of which is to minimize the global threat of HPAI to human and domestic poultry and other animal populations through the control and gradual eradication of HPAI.
3. HPAI is mainly an animal health problem, although more than half of the 120 human cases have been fatal. However, it is widely believed in the scientific community that a global pandemic of human influenza is both overdue and inevitable. Such a pandemic would be the result of the emergence of a strain of virus to which the world's population had little or no immunity. A widespread epidemic needs not be severe or particularly deadly; the pandemics of 1957-1958 and 1968-1969 were relatively mild. However, there is the possibility that the H5N1 strain could, through genetic re-assortment or a more gradual process of adaptive mutation, become readily transmissible from human-to-human and become the basis of a global pandemic comparable to that of 1918-1919, the "Spanish" influenza, which recent research has shown to have had its origin in an avian influenza virus.
4. The situation faced by individual countries is characterized by both urgency and uncertainty. Warnings that a pandemic may occur have come from both changes in the epidemiology of the disease in human and animal populations and the expanding geographical spread of the virus that creates ever-widening opportunities for human exposure. Neither the timing nor the severity of the next pandemic can be predicted, but with the virus now endemic in bird populations the risk will not be easily diminished. There is a major opportunity for international and coordinated intervention, and it is in the interests of all countries to delay the emergence of a pandemic virus and its spread to augment the supply of vaccine.
5. There is a dilemma in preparing for a potentially catastrophic, but unpredictable event, especially for those countries currently affected by the H5N1 virus outbreaks in animal and human populations. It is clear, however, that containing and eradicating the virus would be a desirable objective even if the problem were restricted to one of animal health in a given country. The global public health implications of the potential emergence of the virus as the next human influenza pandemic make coordinated action essential.
6. Those countries with endemic HPAI of the H5N1 strain must sustain (and perhaps intensify) resource-intensive activities and shoulder the burden of economic losses in part to safeguard international public health. Assisting them with the financial costs of so doing is clearly an international responsibility.
7. WHO has prepared a global plan and guidelines for pandemic preparedness and is developing a model country plan that will allow countries to assess their state of preparedness and identify priority needs. The WHO strategy has five strategic actions, summarized as follows:

Phase	Strategic Action
Pre-pandemic	1. Reduce the opportunities for human infection 2. Strengthen the early warning system
Emergence of pandemic virus	3. Contain and/or delay the spread at source
Pandemic declared	4. Reduce morbidity, mortality and social disruption 5. Conduct research to guide response measures

8. In close coordination, WHO, FAO and OIE have prepared a global strategy for the progressive control of HPAI which is a “*master coordination plan ... defining ... short, medium and long term priority activities, to be endorsed and supported by individual countries and regional organizations ...*” which is to be complimented by more detailed country-specific HPAI control plans, the preparation of which is being technically supported by FAO. This global strategy, in effect, addresses the WHO’s two strategic actions in the pre-pandemic phase. The immediate and short-term objective is to prevent further spread of HPAI in those countries that are currently infected; specific measures are tailored to the circumstances of individual countries. The medium- and long-term objectives are to eradicate the disease progressively from the remaining “compartments” of infection and prevent its spread to those countries currently free of HPAI. This global strategy emphasizes a number of key points where action is required:

- (a) inadequate capacity is the main factor limiting the eradication of HPAI; capacity-building in terms of strong and sustainable human and physical resources needs to address all aspects of disease surveillance and control, policy development and socio-economic analysis.
- (b) the dynamics of the rapid spread and persistence of HPAI remain unclear; research into the epidemiology of HPAI, evaluation of the efficacy of vaccines (especially in ducks), the development of improved vaccines and rapid diagnostic tests are all essential. In addition, analysis of production and marketing systems and the risks associated with them are required to target effective disease control, and restructuring of the poultry sector may be required in several countries.
- (c) country-specific projects will be formulated, under-pinned by three sub-regional HPAI support units developing harmonized technical standards and regional policies related to live-animal movement, compensation plans, capacity building, disease reporting requirements and poultry sector restructuring.

9. Economic analysis of these country-specific projects must take into account the unique nature of the problems to be solved. There are two main categories of economic impacts associated with outbreaks of infectious diseases such as HPAI in poultry and a potential human influenza pandemic:

- (a) the economic consequences and costs of sickness or death resulting from the disease outbreaks; and
- (b) the economic consequences and costs associated with public and private efforts to prevent the emergence or spread of the disease and to treat its effects.

10. These two are clearly related; for example, a greater effort at prevention and/or treatment for a given severity of epidemic would be expected to reduce the spread of sickness and/or the percentage of mortality and thus reduce the economic impact and costs.

11. There are also two “levels” of potential economic costs. The present spread of HPAI of the H5N1 strain involves transmission between animals and (so far) a limited incidence of transmission between animals and humans; as such, given the lethal nature of the virus, especially in poultry, it is principally an animal health crisis. However, the emergence of a human influenza pandemic caused by a lethal virus would have a social and economic impact many times greater. Obviously, the severity of the

impact of this second “level” of economic costs would depend on the severity of the pandemic; in the “worst case” scenario it would have a truly devastating effect on human population and on the world economy.

12. Actions taken by any given country can be analyzed using the traditional “with project” and “without project” scenarios when the issue is to treat HPAI as an animal health issue. In this case, costs and benefits can be accurately quantified in some aspects and estimated in others. However, when actions are taken by a country in the wider context of the prevention or slowing down of a human influenza pandemic, this type of analysis begins to enter the realm of fantasy. By definition, no single country can protect itself against an influenza pandemic, and the importance of actions undertaken in one country may well have implications for the well-being of the rest of the world’s population that are incalculable.

13. The economic costs of HPAI outbreaks in Asia have been limited at the macro-economic level but very high for specific sectors and communities. The costs so far incurred are mostly related to the death of poultry from the disease itself, the culling of poultry to stem its spread, and the costs to governments of containing the epidemic in terms of equipment, materials, transport and personnel. Ten Asian countries have had some sort of outbreak of HPAI, with around 140 million birds estimated to have been culled in the region as a whole. The direct economic costs of the outbreaks have been estimated at more than US\$10 billion.

14. In Vietnam, one of the most seriously affected countries, some 44 million birds or 17 percent of the total population of poultry, were culled at an estimated cost of \$120 million (0.3 percent of GDP)⁸. The costs would have been substantially higher if there had been a serious impact on tourism, where an estimated 5 percent drop in tourist and business arrivals would reduce GDP by a further 0.4 percent. Fortunately, there has been only a small impact on tourism so far; the number of tourist arrivals in Vietnam increased by 20.5 percent in 2004 and rose further by 23 percent in the first seven months of 2005. Overall real GDP growth in Vietnam accelerated to 7.7 percent in 2004.

15. Although the overall macro-economic effects have been relatively small, the impact on the poultry sector and on associated input and distribution channels has been severe. An FAO survey indicates that in the most seriously affected parts of Indonesia more than 20 percent of permanent industrial and commercial farm workers lost their jobs. The FAO-OIE estimate that between one-third and a half of the populations in the most affected South East Asian nations derive at least some of their income from poultry production⁹. In Vietnam, the poorest 60 percent of the population earn 6-7 percent of household income from this source and have been particularly at risk in terms of income losses.

16. The uncertainties and gaps in our knowledge about the scope and features of any future pandemic are extensive that a brief note such as this can only sketch some of main potential channels of impact. An important research priority for the future will be to undertake more formal analysis and modeling of economic impacts, building on previous work done for HIV-AIDS, SARS and other epidemics.

17. **The effects of sickness and mortality on output:** one main set of economic effects results from increased sickness and death among humans and their impact on the potential output of the world economy. Recent estimates suggest that the Spanish influenza of 1918/9 killed perhaps 50 million, or

⁸ World Bank. (2004). *Avian Influenza Emergency Recovery Project. Technical Annex*. Appendix 2. Other earlier and widely cited estimates by Oxford Economic Forecasting had been rather higher, suggesting costs of over \$200 million or around 0.6 percent of GDP for Vietnam, and costs of \$10-15 billion for East Asia as a whole, about 0.3-0.5 percent of regional GDP.

⁹ FAO and OIE. (2005). *A Global Strategy for the Progressive Control of Highly Pathogenic Avian Influenza*. (May).

about 2.5 percent of the then world population of 1.8 billion. Experts predict that the global death toll could range from between 2 million to over 50 million. Studies by the US Center for Disease Control (CDC) reduce that range to between 2 to 7.4 million world-wide. However, narrowing down the range cannot be done with any confidence until the pandemic is under way.

18. The most direct impact on output would be through the effect of increased illness and mortality on the size and productivity of the world labor force. In addition there will also be a general decline in labor productivity due to illness and sick leave among the labor force at large. Such productivity losses due to illness during normal annual influenza episodes are estimated to be ten times as large as all other flu-related costs combined¹⁰. Other long-term impacts would play out as the increased costs of preventing and treating disease reduced savings and investment. The impact on output at the national level would vary widely, depending on the extent of the epidemic, the country's demographic structure, the extent of unemployed resources and other key variables¹¹.

19. **Private preventive responses to an epidemic:** Another set of economic impacts would result from the uncoordinated efforts of private individuals to avoid becoming infected or to survive the results of infection. Private individuals will take action to avoid infection, based on their perceptions of factors such as the disease's transmission mechanism, the probability of infection, the probability of death once infected, and the availability of preventive or curative measures.

20. The SARS outbreak in East Asia provides a good example. There were approximately 800 deaths - and thus no discernible impact on output - but actual economic losses were estimated at 0.5 percent of annual East Asian GDP in 2003, concentrated in the second quarter of the year, when there was a much sharper loss of around 2 percent of quarterly GDP. (Note that a 2 percent loss of global GDP during an influenza pandemic would represent around \$800 billion per year). Why such a severe economic loss? Given the spread of the disease through droplet transmission, people tried to minimize face-to-face interactions. The result was a severe demand shock for services sectors such as tourism, mass transportation, retail sales, hotels and restaurants. Business costs no doubt also increased due to workplace absenteeism, disruption of production processes and shifts to more costly procedures¹².

21. However, while such private actions were economically costly, they likely also played a role in breaking the chain of transmission of the disease. Thus an interesting policy question is how to minimize the ratio of costs to benefits of the inevitable private preventive actions that occur during an epidemic. Note that, at least initially, there was a dearth of public information about SARS, contributing to a large over-estimate by private individuals of the perceived probabilities of infection and death from SARS, a fact documented in opinion survey data. This could have led to over-reactions in the preventive actions taken by the population at large. One lesson from the SARS episode is that a prompt and transparent public information policy could help reduce the economic costs of an epidemic.

22. **Public policy responses to epidemic threats:** A last set of economic impacts are those associated with the policy efforts of the government to prevent the start of an epidemic, to contain the

¹⁰ Laurie Garrett. (2005). *The Next Pandemic?* Foreign Affairs. July/August 2005.

¹¹ Use of a simple Cobb-Douglas production function to make an crude calculation of the loss in world output due to a 2.5 percent decline in the size of the world labor force, leaving aside all issues of differences in the intensity of the epidemic in different countries, availability of unemployed labor, changes in labor productivity, etc. suggests a drop in world potential output of \$500-700 billion.

¹² The role of private preventive actions is analyzed in Tomas Phipson. (1999). *Economic Epidemiology and Infectious Diseases*. NBER Working Paper 7037. See also John Edmunds and Nigel Gay. (2004). *Epidemiological Data Requirements for Economic Modeling: the Example of SARs*. Paper presented at WHO Workshop on The Rapid Assessment of the Economic Impact of Public Health Emergencies of International Concern – the Example of SARS. Toronto, Canada. January 2004.

epidemic once it has begun, and to mitigate its harmful effects on the health of the population. These policy actions can be oriented towards the short, medium or long term, and , in spatial terms, towards national, regional or global levels. FAO-OIE (2005, *op. cit.*) elaborates policies to curb transmission among animals, including enhanced surveillance, diagnosis, bio-security measures, culling and vaccination of poultry. WHO (2005) sets out policies covering situation monitoring, assessment, prevention, containment and health system strategies during six stages before and during a human pandemic. These include, among many other measures, expanding production and targeted use of antiviral medicines and vaccines, as well as ‘social distance measures’ such as closures of schools and quarantines. Ferguson *et al* (2005) use a detailed simulation model of influenza transmission in Thailand to argue that targeted mass prophylactic use of antiviral medicines and social distance measures could halt a pandemic in its earliest stages¹³.

23. All these public policy measures entail economic costs. Even though the human and economic benefits of preventing or containing an influenza pandemic are overwhelming, governments may still be daunted by the cost of various policy measures, especially when these measures are in the nature of global public goods that benefit many more than just the citizens of that nation. The cost of significantly scaling up anti-viral medicine and vaccine research and production would be a case in point. Thus careful economic analysis of different incentive schemes that could foster greater anti-viral medicine and vaccine production in efficient, cost-effective ways could make a large contribution in the effort to prevent or contain a pandemic. Similarly, the use of blanket measures to curb movement within and between countries could cause major economic disruption due to the increasingly globalized nature of modern production processes. Again, careful analysis of critical logistical chains in the world economy could allow consideration of targeted prophylactic use of antiviral medicines to protect transport and other key groups of workers.

¹³ WHO. (2005). *WHO Global Influenza Preparedness Plan*.

Neil M. Ferguson, Derek Cummings, Simon Cauchemez, Christopher Fraser, Steven Riley, Aronrag Meeyai, Sophon Iamsirithaworn and Donald Burke. (2005). *Strategies for Containing an Emerging Influenza Pandemic in Southeast Asia*. Nature. Published online 3 August 2005.

Annex 9: Program Preparation and Supervision

GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC PREPAREDNESS AND RESPONSE

Bank staff and consultants who worked on the Program included:

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Siew Chai Ting	Sr. Financial Management Specialist	ECSPS
Hans Jurgen Gruss	Chief Counsel	LEGEC
	Finance Officer	LOAG1

Annex 10: Documents in the Project File

GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC PREPAREDNESS AND RESPONSE

A. BANK

- Minutes of the Technical discussions and coordination meeting of August 4, 2005
- Guidance notes to country teams on responding to AI
- Rapid assessment of the economic impact of public health emergencies of international concern – the example of SARS – Milan Brahmhatt
- Vietnam Avian Influenza Emergency Recovery Project – Memorandum of the President and Technical Annex
- Minutes of the meeting on the Emerging zoonoses and pathogens: A Global public goods concern – implication for the World Bank, April 19, 2005
- Issues Note on Avian Influenza in Africa, September 27, 2005. – François Le Gall and Ok Pannenberg

B. OTHER DONORS

- A global strategy for the progressive control of HPAI – FAO/OIE in collaboration with WHO – May 2005
- FAO's response to the avian influenza crisis – September 19, 2005
- Technical Cooperation Program – Project descriptions for East Africa, West Africa, Europe and Central Asia, North Africa, and the Middle East – WHO 2005

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D. ANIMAL HEALTH RELATED

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- b. FAO website on Avian Flu General information, Communication, Publications, Projects proposals and reports (www.fao.org)
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Annex 11: Migratory Bird Flyways Map

GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC PREPAREDNESS AND RESPONSE

