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GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN PANDEMIC PREPAREDNESS AND RESPONSE: PROJECT ACCOMPLISHMENTS

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WORLD BANK GROUP
Health, Nutrition & Population

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Health, Nutrition and Population (HNP) Discussion Paper

Global Program for Avian Influenza Control and Human Pandemic Preparedness and Response:
Project Accomplishments

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Abstract: This report reviews some of the accomplishments of the Global Program for Avian Influenza Control and Human Pandemic Preparedness and Response (GPAI). This multisectoral program comprised 72 projects in 60 developing countries in all regions and received $1.3 billion in financing from the World Bank. This support for GPAI projects was one of the World Bank's contributions to a coordinated global response to the threats of avian and pandemic influenzas, which benefited from financing of $4 billion from 35 donors in 2006-2013. Thanks to this support, developing countries strengthened their capacity for early and effective disease control, bringing substantial public health and economic benefits to the countries and to the world. According to Harvard University professor and former US Treasury Secretary Lawrence Summers, "[veterinary and human public health systems are] probably the single most important area for productive investment on behalf of mankind." Indeed, circulation of the highly pathogenic avian flu virus was reduced, helping to lessen the likelihood of onset of a pandemic. Moreover, the projects improved public health systems for reducing locally-relevant health threats. The report presents a brief background on the global program and cross-country accomplishments and then highlights accomplishments for each project, by region.

Keywords: Avian Influenza, pandemic prevention, GPAI

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ABBREVIATIONS AND ACRONYMS

AFR	Sub-Saharan Africa Region
AHI	Avian and Human Influenzas
AHIF	Avian and Human Influenza Facility (World Bank-administered trust funds)
AI	Avian Influenza
AU-IBAR	African Union – Inter African Bureau of Animal Resources
BSL	Biosecurity level for laboratories working on pathogens (e.g., a BSL-3 laboratory has higher biosecurity than a BSL-2 laboratory)
CAHW	Community Animal Health Worker
CDC	US Centers for Disease Control and Prevention
EAP	East Asia and Pacific Region
EC	European Commission
ECA	Europe and Central Asia Region
ECOWAS	Economic Community of West African States
EID	Emerging infectious disease
FAO	Food and Agriculture Organization (UN agency)
FET	Field-based epidemiology training
FY	Fiscal year of the World Bank, from July 1 to June 30. For example, FY09 ended on June 30, 2009.
GPAI	Global Program for Avian Influenza Control and Human Pandemic Preparedness and Response
HPAI	Highly Pathogenic Avian Influenza (including H5N1)
ICR	Implementation completion and results report
ILI	Influenza-like illness
IOM	International Organization for Migration (UN agency)
ISR	Implementation Status Report
KAP	Knowledge, attitudes and practices (survey)
LCR	Latin America and the Caribbean Region
M&E	Monitoring and Evaluation
MNA	Middle East and North Africa Region
MOH	Ministry of Health
OIE	World Organization for Animal Health *(Office International des Epizooties)*
PDO	Project Development Objective
PHRD	Policy and Human Resources Development Trust Fund (administered by the World Bank)
PPE	Personal protective equipment
PVS	Performance of Veterinary Services (assessment)
RAHC	Regional Animal Health Centre (a technical coordination platform)
RRT	Rapid Response Team (for response to disease outbreaks)
SAR	South Asia Region
SARS	Severe acute respiratory syndrome (disease of animal origin)
UNDP	United Nations Development Program (UN agency)
UNICEF	United Nations Children's Fund (UN agency)
UNSIC	UN System Influenza Coordination
USAID	US Agency for International Development
VVW	Village veterinary worker
WAEMU	West Africa Economic and Monetary Union
WHO	World Health Organization (UN agency)

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KEY WEBSITES

FAO	www.fao.org/ag/againfo/themes/en/animal_health.html
OIE	www.oie.int/support-to-oie-members
Towards a Safer World	www.towardsasaferworld.org
UNSIC	www.un-influenza.org
WHO	www.who.int/influenza/en
World Bank	www.worldbank.org/pandemics

INTRODUCTION

BACKGROUND

Starting in 2005, the world has seen an increasing threat from avian and human influenzas and other pandemic diseases. In response, the international community mounted an unprecedented effort that coordinated animal health and human health interventions. The World Bank worked with the international technical agencies (World Health Organization – WHO, World Organization for Animal Health – OIE, and the Food and Agriculture Organization – FAO) and other experts to prepare a Global Program for Avian Influenza Control and Human Pandemic Preparedness and Response (GPAI). The GPAI was based on a template of actions and investment choices to promote pandemic preparedness, prevent contagion through control of avian flu at its animal source, and build response capacity so that contagion would be stopped quickly and effectively, and therefore at a low cost.

Building capacity so that governments can perform core public health functions of detecting disease outbreaks early, diagnosing them correctly, and controlling disease spread quickly and effectively are the highest-return investment opportunities available to countries (Table 1). The expected annual rates of return shown in Table 1 take into account only the benefits from preventing pandemics. But robust public health systems also give rise to substantial national co-benefits from reducing the disease burden of locally significant diseases that do not become pandemics. With national benefits included, the rates of return on investments in public health capacities are even higher.

The zoonotic (animal-origin) disease burden alone is staggering: an estimated 2.3 billion zoonotic infections in humans are occurring annually in developing countries (ILRI, 2012). Too often, veterinary and human public health capacities are neglected in government and donor-supported programs. This results in high national disease burdens from zoonotic and other infectious diseases as well as in uncontrolled outbreaks that become epidemics or pandemics.

Table 1. Expected Economic Benefits from Investment in Veterinary and Human Public Health Systems

Success in preventing pandemics	Expected annual rate of return*
20% (only 1 in 5 pandemics prevented)	25%
50% (only half of pandemics prevented)	57%
100% (all pandemics prevented)	86%

* Severe pandemic flu case: Impact is $3 trillion (4.8% of GDP), probability of onset in any year is 1%, the expected benefit of prevention is $30 billion/year. Estimated costs of preventive effort (veterinary and human public health systems that meet WHO-OIE standards) is $3.4 billion/year. Estimated benefits are only from pandemic risk reduction; they do not include additional substantial national co-benefits.

Source: World Bank (2010). *People, Pathogens and Our Planet, Vol. 2: The Economics of One Health.*

Because of its focus on prevention and preparedness for control of contagion at its animal source, the avian and pandemic influenza response was highly cost-effective and evidence-based, informed by experience with confronting other health threats that knew no borders, including the severe acute respiratory syndrome (SARS) outbreak in 2003 and HIV/AIDS. Since all influenzas, as well as many other diseases, originate in animals and infect livestock before adapting to spread among humans, the GPAI was multisectoral, with coordination globally, within regions, and in countries. The GPAI built capacity that is relevant to all such zoonotic (animal-origin) diseases and conditions like antimicrobial resistance (AMR).

SELECT GLOBAL ACTIVITIES IN SUPPORT OF DEVELOPING COUNTRIES' RESPONSES

The GPAI was global in scope because with greatly increased international trade and travel, a novel pathogen capable of sparking a pandemic can spread from a remote village in a developing country to megacities on all continents in 36 hours. The World Bank worked with the UN and other organizations to monitor the global program, which mobilized $4 billion from 35 donors. These funds assisted developing

countries in tackling the threat. The four main principles that countries and international organizations agreed would guide the global program are summarized in Box 1.

Box 1. Main Features of the Global Response to Avian and Human Influenzas (AHI)

"The emerging international consensus is that the coordinated global response to AHI should be based on a common vision for addressing three areas of activity:

i. prevent a human influenza pandemic by controlling the highly pathogenic H5N1 virus in fowl and preparing for the next pandemic with vastly improved surveillance;
ii. contain a human influenza pandemic by rapid detection and care of human cases and preventing human to- human transmission of the pathogen;
iii. respond in the event of a pandemic to keep vital services and societies going and mitigate the impact of the pandemic on human health, society, economic systems, and systems for governance.

It is widely agreed that a coordinated strategy should recognize the following key issues:

- A **multisectoral approach** is needed. An integrated response that effectively balances both animal and human health interventions must involve actors from a range of disciplines, including human health, agriculture, economics, finance, and planning.
- Individual **countries are central to a coordinated response**. While the threat of AHI is global, the coordinated response must be initiated and led at the country level—that is, it must be based on country strategies developed and owned by the governments facing the threat of AHI. Country commitment to an integrated program is critical, as is coordinated donor support for such programs. Whereas the international community can provide critical advice and support, it is the countries that will implement the response.
- A **balance must be struck between short- and long-term actions**. Immediate action is needed to prevent the further spread of AHI, both in infected and newly infected countries. In the longer term, the strategy will need to address such issues as restructuring the poultry industry, developing the capacity of veterinarian services, preparing the health sector (including through health sector reform) to deal effectively with future pandemics, enhancing public health surveillance capacity, and addressing the global market failure in influenza vaccine and production.
- **Evaluation** of key interventions and actions will be critical. Comprehensive evaluation systems that are capable of providing timely guidance on what actions are and are not effective should be an integral feature of program design."

Source: World Bank (2006). Avian and Human Influenza: Financing Needs and Gaps. January 12, 2006. Prepared for the Beijing Ministerial Conference.

The World Bank's support was important at the country level, with financing of $1.3 billion and implementation assistance to 72 GPAI projects in 60 developing countries. The International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA) together provided $1.2 billion as loans and limited grants, accounting for most of the financing from the World Bank. The remainder was from trust funds administered by the World Bank, notably the multidonor Avian and Human Influenza Facility (AHIF), which received $127 million from ten donors, led by the European Commission. Countries obtained technical assistance and other support from other agencies as well (for example, USAID, European Commission, CDC, OIE, FAO, WHO, UNICEF, and the Australian, Canadian and UK bilateral aid agencies) to help implement the GPAI projects.

The international community also sought to improve coordination across partner agencies, across sectors, and to sustain implementation momentum in countries. This was pursued in several ways. A series of ministerial and other high-level international conferences brought together ministers of health and agriculture and international partners (Table 2). The United States and the European Union led this important political process while the United Nations and the World Bank provided monitoring, reporting, and assessments of gaps in the response. These conferences were important opportunities for high-level policymakers and other practitioners from developing countries to exchange views on the global response to the avian and pandemic influenza threats. In particular, the Government of Vietnam organized an impactful week-long learning event, including field visits, before the ministerial conference in 2010.

The World Bank and other development institutions did not sustain these efforts, however. The most significant finding in the report by the Independent Evaluation Group (IEG, 2014) "Responding to Global

Public Bads – Learning from Evaluation of the World Bank Experience with Avian Influenza in 2006-13" was that: "after 2010, the World Bank has not sustained the zoonotic disease risk management and pandemic preparedness agendas and failed to mainstream them into Bank strategy and operations."

Table 2. Key Global Meetings on the Response to Avian and Pandemic Influenzas

Place (date)	Participants	Select outcomes
Geneva (November 2005)	Senior officials	• Agreement on integrated programs (animal health, human health, communications, disaster risk management) • Emphasis on country-led efforts as essential to the effectiveness of the global response
Beijing (January 2006)	Ministers	• Pledges within a flexible financing framework, instead of a vertical fund
Bamako (December 2006)	Ministers	• Pledges for Africa
New Delhi (2007)	Ministers	• Request to World Bank and other agencies for a One Health strategy
Sharm El Sheikh (2008)	Ministers	• One Health strategy welcomed
Hanoi (2010)	Ministers	• Fifth global report by World Bank and UNSIC proposed way forward • Tripartite for One Health (WHO, FAO, OIE) established • Ministers urged implementation of One Health approaches
Mexico City (2011)	Senior officials	• Systems approach, commonalities among disease control programs • One Health global priorities: rabies, AMR, animal influenzas

Advocacy for prevention and communications to the public and policy-makers were key to a successful reduction of pandemic risk from the start of the response in 2005 and were was re-affirmed as such by the ministerial conference in 2010. These activities by leading officials and institutions are indispensable because it is known that unfortunately substantial risks tend to be underestimated -- or even ignored. Media coverage follows an outbreak narrative, reporting new developments but neglecting underlying potential problems. Yet, risk awareness is the necessary first step toward better risk management. When responsibility for coordination of the avian and pandemic influenza program transferred from a central department of the World Bank to the Health, Nutrition and Population sector department in 2010, the World Bank sharply reduced its advocacy for prevention and preparedness, which in turn lowered the momentum of implementation of the still-ongoing GPAI projects (and other public health investments) in developing countries. Investments in veterinary and human public health systems thus had lower priority and chance of success, increasing again the probability and expected costs of a pandemic.

The lack of visibility and recognition of avian flu control efforts by developing countries were all the more regrettable because poor people in poor countries ended up contributing a substantial part of the costs of avian flu and efforts to control the disease. Though the GPAI was launched in the context of a global and country engagement that was to extend to 2020 (and the 2010 ministerial conference urged such continued efforts), the program itself shrunk almost as rapidly and dramatically as the communications and advocacy for prevention. By 2014, when the president of a leading international development center discussed opportunities for ways that the World Bank could contribute to faster global poverty reduction, she highlighted that "the Bank's program of surveillance and response to the Avian flu crisis a decade ago has disappeared; an independent evaluation of the program concluded that the global public good nature of the program meant it was difficult for the bank to sustain once the sense of crisis passed."[1] This disappearance results in amnesia about the risks, which leads to yet lower preventive efforts and then to excessively high costs of tackling the next emergency.

[1] Nancy Birdsall: *My Two Big Worries about the World Bank*, Center for Global Development, November 13, 2014, http://www.cgdev.org/blog/my-two-big-worries-about-world-bank .

Pandemic risk is high because of extremely low capacity of public veterinary services, combined with a low capacity of human public health systems in most developing countries. The One Health approaches that are required to reduce pandemic risk were broadly approved by developing country participants in the AHI response, but in practice external assistance programs did not include funding for this agenda once the AHI response ended.

In 2006-2009, the World Bank used the Global Development Learning Network and other videoconferencing facilities to produce a series of 24 seminars and mini courses on pandemic preparedness and avian flu control. Participants included leading practitioners, from some 20 developing countries and from organizations and partners such as the UN, WHO, US Centers for Disease Control and Prevention (CDC), UN Children's Fund (UNICEF), the European Commission (EC), UN Food and Agriculture Organization (FAO), US Department of Health and Human Services (USHHS), and the Association of Southeast Asian Nations (ASEAN). This interactive information exchange was strongly supported by the UN System Influenza Coordinator (UNSIC) as central to the ability of developing countries and the international community to prepare and coordinate adequate responses to the multiple threats arising from outbreaks of avian influenza and a potential human flu pandemic. They shared their experiences and advice. Nine of the sessions were subsequently edited to serve as reference knowledge products (Table 3). The World Bank also produced influential economic and policy analyses, notably on economic costs of a pandemic and on compensation for culled poultry.

Table 3. Sharing Emerging Knowledge on the Emergency Response

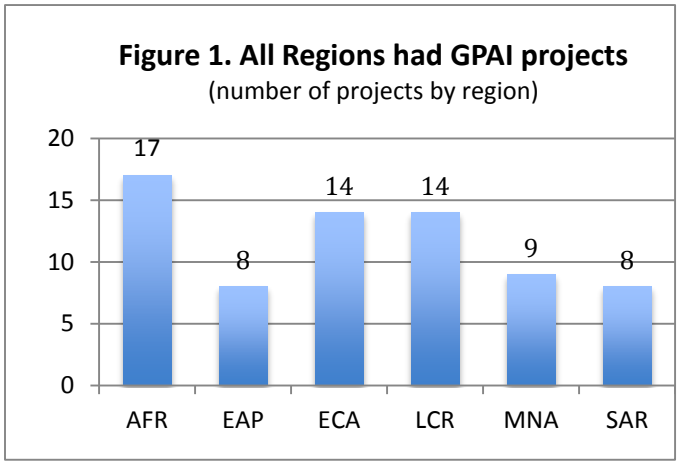
Topic and date	Highlights of Cross-country Knowledge Exchange Sessions
Response to Pandemic H1N1 Influenza in Europe and Central Asia (June – October 2009)	Four sessions using the Global Development Learning Network (GDLN): • The first two sessions were on clinical management and hospital preparedness to engage hospital administrators and emergency managers, among others • One session was on prevention and control measures related to livestock, with a focus on disease surveillance • One session was dedicated to sharing communications materials for a pandemic response, along with WHO toolkits and training materials on communications, including risk communications
Poultry Vaccination (October 2007, March 2008)	• There were two GDLN sessions • Experts from Bangladesh, Benin, China, Egypt, Indonesia, Nigeria, Turkey, and Vietnam, learned from each other about their respective approaches to vaccination, and what did and what did not work • They discussed challenges with specialists from the UN, FAO, OIE and other institutions
Compensation (February 2007)	• Engaged developing country policy makers • Reviewed the World Bank's new global flagship policy report on compensation
Communications Planning (September 2006)	• Seminar co-sponsored by US CDC, which provided expertise and materials • Discussion and cross-country learning in a indispensable area of all responses to disease outbreaks, whether they occur in animals or humans
Importance of Integrated Country Programs in the Fight Against Avian and Human Influenzas (July 2006)	• A detailed discussion of the GPAI and implementation experience up to that time with coordination across sectors • Thailand, Turkey, Vietnam, and Nigeria joined; officials responsible for coordinating their government's responses to AHI sought each other's advice and inputs from experts from World Bank, MOH of Japan, UN, and other agencies • Seminar demonstrates the value of a forum in which practitioners and stakeholders can readily share lessons, experience and existing practice whilst also offering the opportunity for useful collective thinking in areas where practice is still emerging • Participants identified a methodology for tabletop simulation exercises developed in Thailand as being highly relevant to countries seeking to evaluate the robustness of their own national AHI response plans • Initial discussions on the very complex issues surrounding compensation and vaccination policy led to selection of these topics for later sessions

The GPAI was the single largest multisectoral public health program in the World Bank's history. Projects delivered financing and technical assistance to countries. Country-led responses were the necessary component, and thus the main priority, of the overall international response. The GPAI projects were prepared on an emergency basis, and most were implemented rapidly. The projects engaged multiple sectors and aimed to increase systematic coordination among departments and professionals responsible

for human health, animal health, disaster risk management, and communications. Several features of the GPAI served as models for the World Bank's programs to respond to the food crisis and other crises.

METHODOLOGY

The Health, Nutrition, and Population (HNP) team carried out a desk review of the accomplishments of GPAI projects. The objective was to collect, in one place, information on the capacity that was developed and the activities undertaken, since this would help the Bank be better prepared to respond in the next crisis. The team examined project documents, including Implementation Completion and Results Reports (ICRs), Implementation Completion and Results Memorandums (ICMs), Implementation Status and Results Reports (ISRs), and Grant Reporting and Monitoring Reports (GRMs). Due diligence was used to identify the most up-to-date and complete documents. In November 2013 the team confirmed the accuracy of the data with Task Team Leaders responsible for the projects. The data are thus as of the time of project completion, or as of late 2013 for several then-ongoing projects. There are data from projects in 60 countries (three regional projects are also included) in all six regions (Figure 1).



The accomplishments that were identified in project documents were categorized by the team into the following seven groups, based on the GPAI framework:

1. Animal health (prevention, preparedness, surveillance, diagnostic capacity);
2. Animal health (disease control, compensation, biosecurity);
3. Human health (including pandemic preparedness in health sector);
4. Public awareness and communication;
5. Coordination between animal and human public health systems;
6. Pandemic preparedness (multisectoral plans and simulations); and
7. Implementation support and M&E.

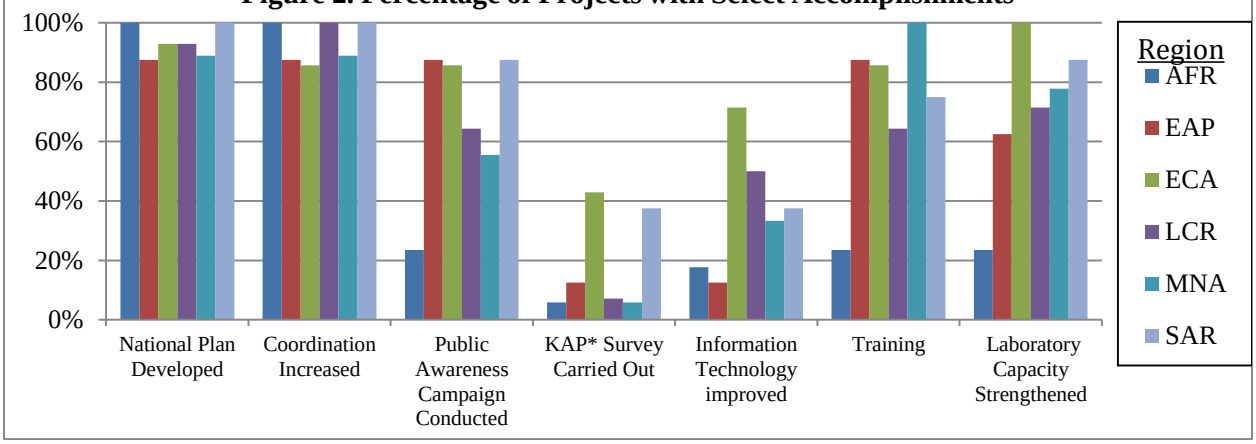
FINDINGS

Individual projects vary in the extent to which they include the above seven activity groups. The vast majority of projects (94 percent) developed or improved a national plan for pandemic response. The vast majority of projects (94 percent) increased coordination between human and animal public health systems. Most projects carried out training (67 percent), were able to strengthen laboratory capacity (67 percent) and conducted public awareness campaigns (63 percent). In total, the GPAI projects trained more than 500,000 people and strengthened capacity for over 800 laboratories. As a group, projects in the Africa Region (AFR) are outliers, as fewer than 25 percent of projects had accomplishments in these activity groups. Most of the AFR projects were relatively small and focused on coordination, technical assistance, and developing Integrated National Action Plans. Overall, too few of the Action Plans received support for implementation, so capacity to promptly and effectively respond to diseases outbreaks remained weak.[2]

[2] Under the GPAI, action plans were prepared also for Guinea, Liberia, and Sierra Leone in 2007, identifying the most urgent priorities for investments in capacity to detect and respond to infectious disease outbreaks (including avian influenza, Ebola, and other contagions). The modest financing requirements, totaling $26 million for the three countries combined, were not met, however. Without investments, the disease-control capacities remained grossly inadequate. The short-sighted decision by governments and donors not to invest in strengthening core public health capacities then proved enormously costly during the 2014-15 Ebola epidemic. While the expected rates of return on spending

Other outcomes were achieved by fewer projects. It was less common that projects carried out Knowledge, Attitudes, and Practices (KAP) surveys (38 percent) or improved Information Technology (IT) use (38 percent). Projects in the Europe and Central Asia (ECA) Region had a relatively high frequency of KAP surveys and IT use (43 percent and 71 percent, respectively), while the lowest frequencies were in Africa and East Asia Pacific (EAP) Regions.

Figure 2. Percentage of Projects with Select Accomplishments



Source: Authors' analyses.

ONE HEALTH APPROACHES

Since nearly all GPAI projects included actions to improve veterinary and human public health systems, the GPAI was the World Bank's first large-scale engagement in supporting One Health approaches. These approaches are indispensable to reduce rising health risks at the animal-human-environment interface. Country clients and partners saw the critical role of the GPAI in systematically bringing sectors together across bureaucratic and professional barriers, especially in the planning and evaluation phases (joint budgets and joint implementation included joint rapid response teams to investigate and control disease outbreaks, but were otherwise less frequent and more difficult to negotiate). In 2010 the Government of Vietnam organized a week-long learning event on One Health approaches for teams from 50 countries and agencies engaged in the AHI response. Results were then discussed at the Hanoi Ministerial conference and reflected in the fourth UNSIC-World Bank global progress report. The World Bank has been using the operational definition in Box 2.

Box 2. Operational Definition of One Health

One Health means "the collaborative efforts of multiple disciplines working locally, nationally and globally to attain optimal health for people, animals and our environment"

(American Veterinary Medical Association, 2008)

One Health is a framework for enhanced collaboration in areas of common interests (intersections), with initial concentration on zoonotic diseases, that will reduce risk, improve public health globally and support poverty alleviation and economic growth in developing countries. This concept involves a better way to deal with risks at the animal-human-environment interfaces.

(World Bank's operational definition, presented to the Hanoi ministerial conference, 2010)

on public health capacities are extraordinarily high (see Table 1), governments and their partners seldom allocate their funding accordingly.

AFRICA (AFR)

The Africa Region had 17 projects that are included in this review. They took place in Benin, Cameroon, Republic of Congo, Guinea, Lesotho, Liberia, Madagascar, Mozambique, Niger, Nigeria, Senegal, Sierra Leone, Sudan, Togo, Uganda (2 projects), and Zambia.

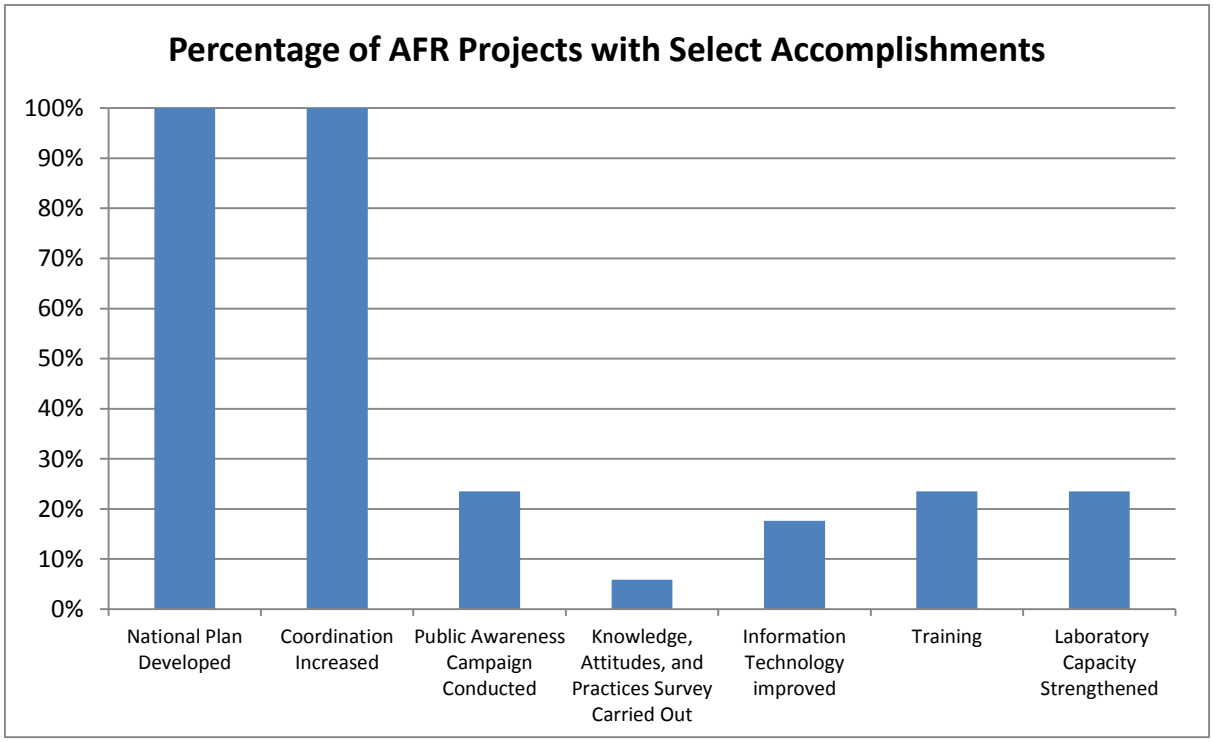
Countries
Benin
Cameroon
Congo, Republic of
Guinea
Lesotho
Liberia
Madagascar
Mozambique
Niger
Nigeria
Senegal
Sierra Leone
Sudan
Togo
Uganda
Zambia

Of the 17 Africa Region projects, eight (Benin, Guinea, Lesotho, Madagascar, Mozambique, Niger, Senegal, and Sudan) were fairly small Integrated National Action Plan (INAP projects) where the primary output was an update or creation of a national action plan. This partially explains the relatively low frequencies of other activities in these projects.

Of the 17 Africa Region projects, all 17 (100 percent) developed a national action plan and increased coordination. Four projects (24 percent) carried out a public awareness campaign and one project conducted Knowledge, Attitudes, and Practices surveys. Three projects (18 percent) improved the use of information technology. Additionally, four projects (24 percent) conducted training exercises, and four projects (24 percent) carried strengthened laboratory capacity.

Note that as part of the international response, other partners provided support in a range of areas. Thus, in the summary project accomplishment briefs below, an entry labelled "not included" reflects selection of support from the World Bank and/or lack of specific references in project documentation.

Project-specific outputs are outlined below.



Source: Authors' analyses.

BENIN

Below is a table highlighting some accomplishments by the Integrated National Action Plan for the Prevention and Control of Avian and Human Influenza Project in Benin. The project was carried out within the GPAI.

Project Information	
Country	Benin
Region	AFR
Project Name	Integrated National Action Plan for the Prevention and Control of Avian and Human Influenza
FY of First Approval	FY06
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Formulated Integrated National Action Plan
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Formulated Integrated National Action Plan
Public awareness and communication	• Formulated Integrated National Action Plan
Coordination between animal and human health systems	• Formulated Integrated National Action Plan
Pandemic preparedness (multisectoral plans and simulations)	• Formulated Integrated National Action Plan
Implementation support and M&E; coordination among partners	• Not Included

CAMEROON

Below is a table highlighting some accomplishments by the Multidonor initiative in Support of the National Integrated Plan (NIP) to Prevent and Fight against Avian and Human Influenza in Cameroon. The initiative was carried out within the GPAI.

Project Information	
Country	Cameroon
Region	AFR
Project Name	Contribution to the Multidonor initiative in Support of the National Integrated Plan (NIP) to Prevent and Fight against Avian and Human Influenza
ID	P105910
Project Cost (US$ m)	1.27
FY of First Approval	FY08
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Trained 1400 technicians, 500 staff in epidemic survey and network surveillance techniques • Distributed 600 rapid diagnostic kids and 2000 doses of vaccination • Purchased 2 vehicles, 24 motorcycles, 10 freezers, 225 cool boxes, 10 desk stops, 10 inverters, 150 boots and 150 blouses • Reinforced national laboratory capacity
Animal health (disease control; compensation; biosecurity)	• Trained 698 poultry sector workers in disease control measures
Human health (incl. pandemic preparedness in health sector)	• Trained 82 ministry of health staff in disease monitoring and response • Reinforced national laboratory capacity with reagents and materials • Distributed 2,500 rapid tests to sentinel sites
Public awareness and communication	• Developed national communications plan • Trained 296 teachers and 96 medical doctors through 11 comprehensive workshops • Produced and distributed 2,000 folders, 4,500 posters, 3,000 cards, 1,500 information kits and 8,000 flyers • Carried out KAP assessment
Coordination between animal and human health systems	• Increased coordination between departments and donors
Pandemic preparedness (multisectoral plans and simulations)	• Established technical secretariat, the Interministerial Committee and Steering Committee
Implementation support and M&E; coordination among partners	• Established effective consultation and coordination between the technical secretariat and the interministerial committee

CONGO, REPUBLIC OF

Below is a table highlighting some accomplishments by the Avian Flu Emergency Preparedness Response Project in the Republic of Congo, carried out within the GPAI.

Project Information	
Country	Congo, Republic of
Region	AFR
Project Name	Avian Flu Emergency Preparedness Response
ID	P105743
Project Cost (US$ m)	0.999
FY of First Approval	FY08
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Carried out investigation missions in ten departments • Conducted training on technical, surveillance and diagnostic guidelines • Purchased vehicles and motorcycles
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Carried out training of nurses and medical staff • Conducted training of trainers regarding AI and early diagnosis
Public awareness and communication	• Provided Information, Education and Communication materials to all stakeholders • Disseminated Information, Education and Communication tools through radio, television, and printed press • Increased awareness at international airport
Coordination between animal and human health systems	• Established coordination framework for emergency response
Pandemic preparedness (multisectoral plans and simulations)	• Action plan was centralized and analyzed by Ministry of Health and others Ministries concerned
Implementation support and M&E; coordination among partners	• Recruited external auditor to evaluate action plan

GUINEA

Below is a table highlighting some accomplishments by the Integrated National Action Plan for the Prevention and Control of Avian and Human Influenza Project in Guinea, carried out within the GPAI.

Project Information	
Country (Region)	Guinea (AFR)
Project Name	Integrated National Action Plan for the Prevention and Control of Avian and Human Influenza
FY of First Approval	FY06
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Formulated Integrated National Action Plan
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Formulated Integrated National Action Plan
Public awareness and communication	• Formulated Integrated National Action Plan
Coordination between animal and human health systems	• Formulated Integrated National Action Plan
Pandemic preparedness (multisectoral plans and simulations)	• Formulated Integrated National Action Plan
Implementation support and M&E; coordination among partners	• Not Included

LESOTHO

Below is a table highlighting some accomplishments by the Integrated National Action Program (INAP) For Preparedness and Response to Avian and Human Influenza Project in Lesotho, carried out within the GPAI.

Project Information	
Country (Region)	Lesotho (AFR)
Project Name	Integrated National Action Program (INAP) for Preparedness and Response to Avian and Human Influenza
FY of First Approval	FY06
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Formulated Integrated National Action Plan
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Formulated Integrated National Action Plan
Public awareness and communication	• Formulated Integrated National Action Plan
Coordination between animal and human health systems	• Formulated Integrated National Action Plan
Pandemic preparedness (multisectoral plans and simulations)	• Formulated Integrated National Action Plan
Implementation support and M&E; coordination among partners	• Not Included

LIBERIA

Below is a table highlighting some accomplishments by the Avian Influenza Preparedness - Rapid Assessment Project in Liberia, carried out within the GPAI.

Project Information	
Country (Region)	Liberia (AFR)
Project Name	Avian Influenza Preparedness - Rapid Assessment
ID	P104426
Project Cost (US$ m)	0.094
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Formulated Integrated National Action Plan
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Formulated Integrated National Action Plan
Public awareness and communication	• Formulated Integrated National Action Plan
Coordination between animal and human health systems	• Formulated Integrated National Action Plan
Pandemic preparedness (multisectoral plans and simulations)	• Formulated Integrated National Action Plan
Implementation support and M&E; coordination among partners	• Not Included

MADAGASCAR

Below is a table highlighting some accomplishments by the Integrated National Action Plan for the Prevention and Control of Avian and Human Influenza Project in Madagascar, carried out within the GPAI.

Project Information	
Country (Region)	Madagascar (AFR)
Project Name	Integrated National Action Plan for the Prevention and Control of Avian and Human Influenza
FY of First Approval	FY08
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Formulated Integrated National Action Plan
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Formulated Integrated National Action Plan
Public awareness and communication	• Formulated Integrated National Action Plan
Coordination between animal and human health systems	• Formulated Integrated National Action Plan
Pandemic preparedness (multisectoral plans and simulations)	• Formulated Integrated National Action Plan
Implementation support and M&E; coordination among partners	• Not Included

MOZAMBIQUE

Below is a table highlighting some accomplishments by the Strengthening the National Avian Influenza Control and Response Plan Project in Mozambique, carried out within the GPAI.

Project Information	
Country (Region)	Mozambique (AFR)
Project Name	Strengthening the National Avian Influenza Control and Response Plan
ID	P105858
Project Cost (US$ m)	0.09885
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Formulated Integrated National Action Plan
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Formulated Integrated National Action Plan
Public awareness and communication	• Formulated Integrated National Action Plan
Coordination between animal and human health systems	• Formulated Integrated National Action Plan
Pandemic preparedness (multisectoral plans and simulations)	• Formulated Integrated National Action Plan
Implementation support and M&E; coordination among partners	• Not Included

NIGER

Below is a table highlighting some accomplishments by the Integrated National Action Plan for the Prevention and Control of Avian and Human Influenza Project in Niger, carried out within the GPAI.

Project Information	
Country (Region)	Niger (AFR)
Project Name	Integrated National Action Plan for the Prevention and Control of Avian and Human Influenza
Project Cost (US$ m)	5.6
FY of First Approval	FY06
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Formulated Integrated National Action Plan
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Formulated Integrated National Action Plan
Public awareness and communication	• Formulated Integrated National Action Plan
Coordination between animal and human health systems	• Formulated Integrated National Action Plan
Pandemic preparedness (multisectoral plans and simulations)	• Formulated Integrated National Action Plan
Implementation support and M&E; coordination among partners	• Not Included

NIGERIA

Below is a table highlighting some accomplishments by the Avian Influenza Control and Human Pandemic Preparedness and Response Project in Nigeria, carried out within the GPAI.

Project Information	
Country	Nigeria
Region	AFR
Project Name	Avian Influenza Control and Human Pandemic Preparedness and Response
ID	P100122
Project Cost (US$ m)	62.2
FY of First Approval	FY06
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Renovated and equipped six laboratories to diagnose avian influenza, including RT-PCR testing capabilities • Trained 6,709 veterinary staff in awareness raising, monitoring, investigating, sampling, safety and test procedures • Established the National Animal Disease Information and Surveillance network
Animal health (disease control; compensation; biosecurity)	• Established 14 model live bird markets in high-risk states • Trained 8,000 commercial and semi-commercial poultry farmers • Upgraded Five veterinary teaching hospitals to bio-security level 2 (BSL2) • Culled 1.26 million birds, identified 754,000 birds as having died from influenza, and destroyed 118,000 eggs • Compensation to 3,037 poultry farmers (US$5 million)
Human health (incl. pandemic preparedness in health sector)	• Trained 2,436 public health workers in safety, surveillance and diagnostic methods • Developed capacity to diagnose and treat highly-pathogenic avian influenza in humans in eight targeted public health facilities • Made 100,000 doses of antiviral drugs (oseltamivir) available
Public awareness and communication	• Developed a national communications strategy • Established Public Enlightenment Committees in all 36 states • Twenty-four fully fitted communications vans were procured and distributed to state communications desks.
Coordination between animal and human health systems	• Established an inter-ministerial and inter-institutional mechanism for coordinating responses to avian influenza
Pandemic preparedness (multisectoral plans and simulations)	• Formulated Integrated National Action Plan
Implementation support and M&E; coordination among partners	• Not Included

SENEGAL

Below is a table highlighting some accomplishments by the Strengthening the National Avian Influenza Control and Response Project in Senegal, carried out within the GPAI.

Project Information	
Country	Senegal
Region	AFR
Project Name	Strengthening the National Avian Influenza Control and Response Plan
FY of First Approval	FY08
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Formulated Integrated National Action Plan
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Formulated Integrated National Action Plan
Public awareness and communication	• Formulated Integrated National Action Plan
Coordination between animal and human health systems	• Formulated Integrated National Action Plan
Pandemic preparedness (multisectoral plans and simulations)	• Formulated Integrated National Action Plan
Implementation support and M&E; coordination among partners	• Not Included

SIERRA LEONE

This table highlights some accomplishments by the Avian Flu Rapid Assessment Project in Sierra Leone, carried out within the GPAI.

Project Information	
Country	Sierra Leone
Region	AFR
Project Name	Avian Flu Rapid Assessment
ID	P104422
Project Cost (US$ m)	0.0943
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Formulated Integrated National Action Plan
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Formulated Integrated National Action Plan
Public awareness and communication	• Formulated Integrated National Action Plan
Coordination between animal and human health systems	• Formulated Integrated National Action Plan
Pandemic preparedness (multisectoral plans and simulations)	• Formulated Integrated National Action Plan
Implementation support and M&E; coordination among partners	• Not Included

SUDAN

Below is a table highlighting some accomplishments by the Integrated National Action Program for Preparedness and Response to Avian and Human Influenza Project in Sudan, carried out within the GPAI.

Project Information	
Country (Region)	Sudan (AFR)
Project Name	Integrated National Action Program for Preparedness and Response to Avian and Human Influenza
FY of First Approval	FY08
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Formulated Integrated National Action Plan
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Formulated Integrated National Action Plan
Public awareness and communication	• Formulated Integrated National Action Plan
Coordination between animal and human health systems	• Formulated Integrated National Action Plan
Pandemic preparedness (multisectoral plans and simulations)	• Formulated Integrated National Action Plan
Implementation support and M&E; coordination among partners	• Not Included

TOGO

Below is a table highlighting some accomplishments by the Integrated National Action Program (INAP) For Preparedness and Response to Avian and Human Influenza Project in Togo, carried out within the GPAI.

Project Information	
Country (Region)	Togo (AFR)
Project Name	Integrated National Action Program for Preparedness and Response to Avian and Human Influenza
ID	P108484
Project Cost (US$ m)	0.5599
FY of First Approval	FY08
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Formulated Integrated National Action Plan
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Formulated Integrated National Action Plan
Public awareness and communication	• Formulated Integrated National Action Plan
Coordination between animal and human health systems	• Formulated Integrated National Action Plan
Pandemic preparedness (multisectoral plans and simulations)	• Formulated Integrated National Action Plan
Implementation support and M&E; coordination among partners	• Not Included

UGANDA

Below is a table highlighting some accomplishments by two projects in Uganda, carried out within the GPAI.

Project Information		
Country	Uganda	Uganda
Region	AFR	AFR
Project Name	Avian Flu Rapid Assessment	Avian and Human Influenza Control & Preparedness Emergency
ID	P105366	P110207
Project Cost (US$ m)	0.095	12.5
FY of First Approval	FY07	FY08
Component	**Accomplishments**	
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Formulated Integrated National Action Plan	• Procured personal protective equipment • Established e-reporting in most districts • Supplied 10 high-risk districts with pick-up trucks • Purchased 50 motorcycles • Established Rapid Response Teams in 112 districts • Operationalized 2 quarantine centers and 40 checkpoints
Animal health (disease control; compensation; biosecurity)	• Not Included	• Registered most commercial farmers in the country
Human health (incl. pandemic preparedness in health sector)	• Formulated Integrated National Action Plan	• Equipped labs in 15 at-risk districts with rapid detection kits for Influenza A
Public awareness and communication	• Formulated Integrated National Action Plan	• Not Included
Coordination between animal and human health systems	• Formulated Integrated National Action Plan	• Formulated Integrated National Action Plan
Pandemic preparedness (multisectoral plans and simulations)	• Formulated Integrated National Action Plan	• Formulated Integrated National Action Plan • Carried out INAP workshop
Implementation support and M&E; coordination among partners	• Not Included	• Not Included

ZAMBIA

Below is a table highlighting some accomplishments by the Avian Influenza Prevention and Control Project (P103625) in Zambia, carried out within the GPAI.

Project Information	
Country	Zambia
Region	AFR
Project Name	Avian Influenza Prevention and Control
ID	P103625
Project Cost (US$ m)	0.84
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Trained at least 54 staff members from 18 high-risk districts • Motorcycles for use in active surveillance have been procured. • Staff have been trained • Delivered laboratory equipment and reagents to designated laboratories • Tested 2025 samples • Established surveillance protocol for avian and human influenza
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Trained 245 health staff, including RT-PCR testing training • Established surveillance protocol for avian and human influenza
Public awareness and communication	• Created national communication strategy • Developed, printed, and disseminated information, education, and communications materials in urban areas
Coordination between animal and human health systems	• Prepared guidelines for active surveillance and sampling
Pandemic preparedness (multisectoral plans and simulations)	• Established National Action Plan
Implementation support and M&E; coordination among partners	• Not Included

AFRICA REGION CASE STUDIES

Below are selected case studies of GPAI interventions in the AFR Region. These case studies are intended to complement the country overviews and provide greater depth and detail regarding the operations of the GPAI.

ALive: Integrated National Action Programs in Africa

Background. ALive is a partnership for livestock development, poverty alleviation and sustainable growth in Africa. ALive's Integrated National Action Program (INAP) on Avian and Pandemic Influenza in Africa was a rallying point and mechanism of regional cooperation among technical agencies (WHO, OIE, FAO and the African Union-Inter African Bureau of Animal Resources (AU-IBAR)) and donor institutions (European Commission-EC, the French government, and the World Bank). These and other partners were committed to the prevention and control of avian influenza in the Sub-Saharan Africa (AFR) region.

Funded by the European Commission and the French Ministry of Foreign Affairs, and hosted by the World Bank, the ALive's INAP program provided technical assistance to SSA Governments towards the Rapid Assessment (RA) of AHI prevention and control capacities and developing recommendations on improving such capacities contained in a draft INAP. Following Government endorsement, ownership and implementation of the INAP rests solely in the Government. ALive also provided assistance to the Government in accessing international funding (World Bank, others) for financing INAP implementation.

How the collaboration worked. ALive established direct dialogue with individual SSA Governments regarding their collective responsibility for a regional and global public good by developing and implementing an INAP program. Once a Government submitted a request to ALive for technical assistance, ALive coordinated with its technical partners on launching a multisectoral RA mission and developing the country's draft INAP. The development of each country INAP involved assembling the different components based on the experts' reports and recommendations, validation and peer review by institutional experts, final review and clearance by all institutions and ALive, and endorsement by the Government. ALive experts and technical consultants from each partner technical institution worked hand-in-hand towards providing each Government a results-oriented and viable INAP. This coordinated approach for the avian and human influenza program in SSA is an example of best practice in international collaboration among donors, technical institutions and the Government.

Accomplishments. As of September 2008, rapid assessment missions were completed in 15 countries and ongoing or planned in further 3 countries. Draft INAPs were sent to the Governments of 7 countries for their endorsement, and further 4 draft INAPs awaited validation and/or clearance from the technical partner agencies. ALive assisted Governments in organizing stakeholders'/donors' workshops aimed at obtaining international financial support for implementation of their INAPs. All partner Governments as well as donors supported the integrated and harmonized approach in developing the INAPs and fully welcomed the workshop as a means of leveraging international financial assistance.

Source: World Bank, ALive Secretariat

Communication Strategies in Nigeria

Following the first confirmed case of the avian influenza outbreak in Nigeria in January 2006, intense advocacy by UN agencies and bilateral donors resulted in an early response by the government. As a first step, a multisectoral National Steering Committee was established to provide policy direction to control the spread of AI.

The Nigerian government developed an Avian Influenza Control Program (AICP) with support from the UN and the World Bank. Under the AICP, the National Public Enlightenment Committee was tasked with the planning, coordination, implementation and monitoring of AI outbreak communication and behavior change communication/social mobilization activities.

A communication strategy and structure similar to the National Public Enlightenment Committee was established in all 36 states and the Federal Capital Territory. The objective was to ensure that there is sufficient technical capacity at the national and sub-national levels:

- To implement mass awareness campaigns;
- To design and roll out inter-personal communication packages for health workers;
- To establish a community surveillance system; and
- To carry out training of trainers at the Local Government and community levels in promoting AI preventive behaviors.

Participatory Action Research supported by the UNICEF West and Central Africa Regional Office and implemented by the Academy for Educational Development in late 2006 confirmed the efficiency of the Nigerian avian influenza communication strategy in reaching over 60 percent of the population with appropriate behavioral actions to protect humans from AI. The challenge of doing so within a very short period in a country of 140 million people was met.

While awareness of AI is high, people's perception of the risk of getting infected with AI was low. To address this issue, emphasis has been placed on community level partnerships with key influential groups such as traditional rulers, religious groups, community development associations, educational institutions, and women's groups. These leaders and opinion makers are being encouraged through training and continued engagement to use their networks to re-enforce preventive behaviors promoted through the mass media. A draft risk communication strategy has also been developed and is being finalized to complement the communication strategy developed in 2006.

Avian influenza outbreaks in Nigeria have been largely confined to birds, but there was one human fatality in January 2007. On-going communication and social mobilization activities reaching various stakeholders and community and household members are being strengthened to limit the further spread of AI among humans.

Nigeria's challenges in fighting avian influenza in poultry include; weak bio-security measures across the poultry sector, widespread backyard poultry rearing practice, continued operation of live-bird markets that do not promote bio-security measures, and cultural practices which result in use of live birds for rituals and co-habitation of birds and humans. Consequently the achievement of behavior change remains of great importance.

Source: Adapted from UNICEF information

A Multisectoral Response Enabled Wider Benefits and Greater Preparedness in Nigeria

Problem and Context. The response **to** Avian and Human Influenza (AHI) has provided an opportunity for Nigeria's veterinarians and their medical counterparts to work together and address the prevention and control of emerging and re-emerging zoonotic diseases. The political leadership at the different tiers of government also came to to view prevention and control of AHI as an issue of good governance. Moreover, the country saw an opportunity to improve its ailing medical and veterinary infrastructures.

Since the first confirmed HPAI outbreak in February 2006 in Kaduna State, the disease has been confirmed in 25 states and the Federal Capital Territory, involving 97 local government areas. The disease has predominantly been experienced in medium and large-scale commercial farms. Outbreaks in backyard farms involving free-range poultry occurred in only 5 states of the Federation. The outbreaks have had severe consequences on the economy and on livelihoods of both small and large-scale producers in the country and the entire West African Sub-region.

Approach and Activities. The government, in collaboration with development partners, adopted a multisectoral, multi-disciplinary approach because of the complex and zoonotic nature of the disease. Activities carried out included:

- Strengthening HPAI control and containment plans through effective depopulation and decontamination.
- Strengthening disease surveillance and diagnostic capacity through strengthening Pan-African Controls of Epizootics (PACE), National Animal Disease Surveillance System (NADIS) epidemio surveillance network and upgrading regional and central Labs to BSL2 and BSL3.
- Strengthening veterinary quarantine services through the rehabilitation of strategically located quarantine stations and training of quarantine personnel and provision of facilities.
- Improving biosecurity in poultry production and trade through intense biosecurity training for all categories of farmers and development of live bird markets.
- Developing a compensation mechanism that involves stakeholder participation.

Results. As a result of the various response activities, the disease was properly controlled and contained. No outbreaks were recorded from October 2007 to July 2008. In July 2008, two confirmed cases in Kano and Katsina states were recorded and promptly contained. In addition, two positive cases were encountered during targeted live bird markets surveillance in Gombe and Kebbi States. Ongoing challenges to the AHI response include controlling the movement of poultry and poultry products across the nation, maintenance of biosecurity in farms and live bird markets, confusion among the general population regarding the difference between AI and Newcastle disease, and a lack of appreciable behavioral change. The response to the threat of AHI has demonstrated that prevention and control of AHI is a complex multisectoral and multidisciplinary endeavor. Improving the veterinary infrastructure, capacity building, and behavior change are essential ingredients in the fight against AHI.

Next Steps and Remaining Challenges. The next steps involve developing a roadmap for a sustainable control and final eradication of AHI and developing a regional strategy for disease surveillance and laboratory networking.

Source: World Bank

Migrant and Border Populations in Senegal

The West African country of Senegal maintains dynamic migration patterns, as it connects Sub-Saharan Africa, North Africa, and Europe, making it a transit country for many migrants. Senegal produces rice, sugar cane, seafood, and produce, attracting seasonal migrant workers as well as migrants en route to Europe. The International Organization for Migration (IOM) has implemented various social mobilization project activities to strengthen migrants and border population's knowledge and capacity to respond to pandemic influenza.

One such activity targeted the Saint Luis region of Senegal, which borders Mauritania, where there is daily movement of different categories of migrants. IOM's community social mobilization project centered on migrant friendly information, education and communication (IEC) material based on WHO and UNICEF key messages, promoting healthy practices to decrease the spread of pandemic influenza. To target different migrant groups, the information flyer was designed to be socially, culturally, and linguistically appropriate as well as gender sensitive.

In November 2009, the IOM worked in collaboration with UNOCHA and the Senegalese Red Cross to organize a community based exercise for the local government in Richard Toll, Senegal, to raise the awareness for the need of a pandemic preparedness plan. The exercise highlighted the potential impact of an influenza pandemic on both the health and non-health sectors and to plan a coordinated response to pandemic influenza, including addressing the needs of migrants and border communities. Participants included regional administrative authorities from departments of health, sanitary services, the fire department, civil protection, security and control border corps. Traditional leaders, community leaders, community organizations and civil society were fully engaged in this exercise to encourage a sense of ownership of pandemic planning. The multi-lingual dialogue focused on scenarios to identify solutions that were possible to implement in their communities, and at the end of the workshop, participants completed proposals for the development of a pandemic preparedness plan at the district and community level.

Source: IOM

Pandemic Preparedness Exercise in Uganda

In October 2009, the Government of Uganda and the United States Africa Command conducted a tabletop exercise to further develop national and regional capacity in disaster response, focusing on a severe influenza pandemic. Supported by the US Center for Disaster and Humanitarian Assistance Medicine, this exercise worked on advancing dialogue among governments to build relationships and enhance modalities for better civil-military cooperation.

The exercise consisted of two forums (national and regional) for strategic coordination and international response. The exercise was divided into four sessions, with scenarios progressing through the phases of the disaster cycle to simulate a realistic sequence of events that could occur during a severe influenza pandemic. Key areas of focus included transportation, security, engineering, public health/medical, humanitarian assistance and communication.

The exercise created an excellent opportunity for senior and mid-level military leaders to train with civil authorities in disaster management, pandemic preparedness and coordination. It assisted participating nations with understanding the potential roles of international organizations, NGOs, and regional entities in the management of a pandemic response, and enhanced the capability of host nations to respond to complex humanitarian emergencies.

Source: World Food Program (WFP)

Cross-border and Regional Cooperation on HPAI in Western Africa

Following Ghana's first HPAI H5N1 outbreaks, FAO organized a cross-border meeting among Ghana and 4 of its neighboring countries (Ivory Coast, Benin, Togo and Burkina Faso) in Ghana in June 2007. The objectives of the meeting were to share experience and develop common approach and strategies on avian influenza surveillance, prevention and control, focusing on areas where transborder collaboration is instrumental. This kind of meeting was the first ever organized in Africa. Two follow-up meetings were organized in Togo (December 2007) and in Ivory Coast (September 2008), with the support of FAO, USAID and the Regional Animal health Center of Bamako, and with an increased participation from countries of the sub-region (western and central Africa). WAEMU and ECOWAS also attended the meetings. It therefore evolved from a cross-border to a sub-regional initiative.

To improve cross border collaboration, these needs were identified:

- Improvement of communication and information exchange between countries in the sub-region through regular meetings among the Chief Veterinary Officers, and among authorities at the borders including timely notification of disease events to Directors of Veterinary Services of the neighboring countries;
- Sharing of technical and human resources along the borders (to join forces), in particular to implement efficient surveillance along the borders;
- Improvement of epidemio-surveillance and laboratory sub-regional networks within and between countries in the sub-region; setting up of socio-economic and communication networks;
- Development of policy on movement of poultry and poultry products within the sub-region;
- Improvement of biosecurity on poultry farms and safe poultry production and trade in the sub-region;
- Inventory of poultry production systems and mapping of the value chains, thus allowing risk evaluation in the sub-region;
- Inventory of border control posts, equipment and allocated human resources;
- Intensification of awareness creation and education of the citizens of the countries in the sub-region;
- Strengthening of collaboration between stakeholders, for example, security agencies, community-based organizations, farmers' organizations, nongovernmental organizations, etc.; and
- Use of legal sanitary certificates from regional organizations.

These above needs have been translated into recommendations.

One first concrete output of these meetings has been the elaboration of an international veterinary certificate template for ECOWAS countries, to ensure traceability of poultry products, to harmonized documents for easier veterinary controls at the borders and to ensure compliance with required sanitary standards. These templates have been issued in July 2008 by the Bamako RAHC and will be discussed during the forthcoming trans-border meetings, before final endorsement by ECOWAS.

Source: FAO Global Program on HPAI prevention and control Report, September 2008

EAST ASIA AND PACIFIC (EAP)

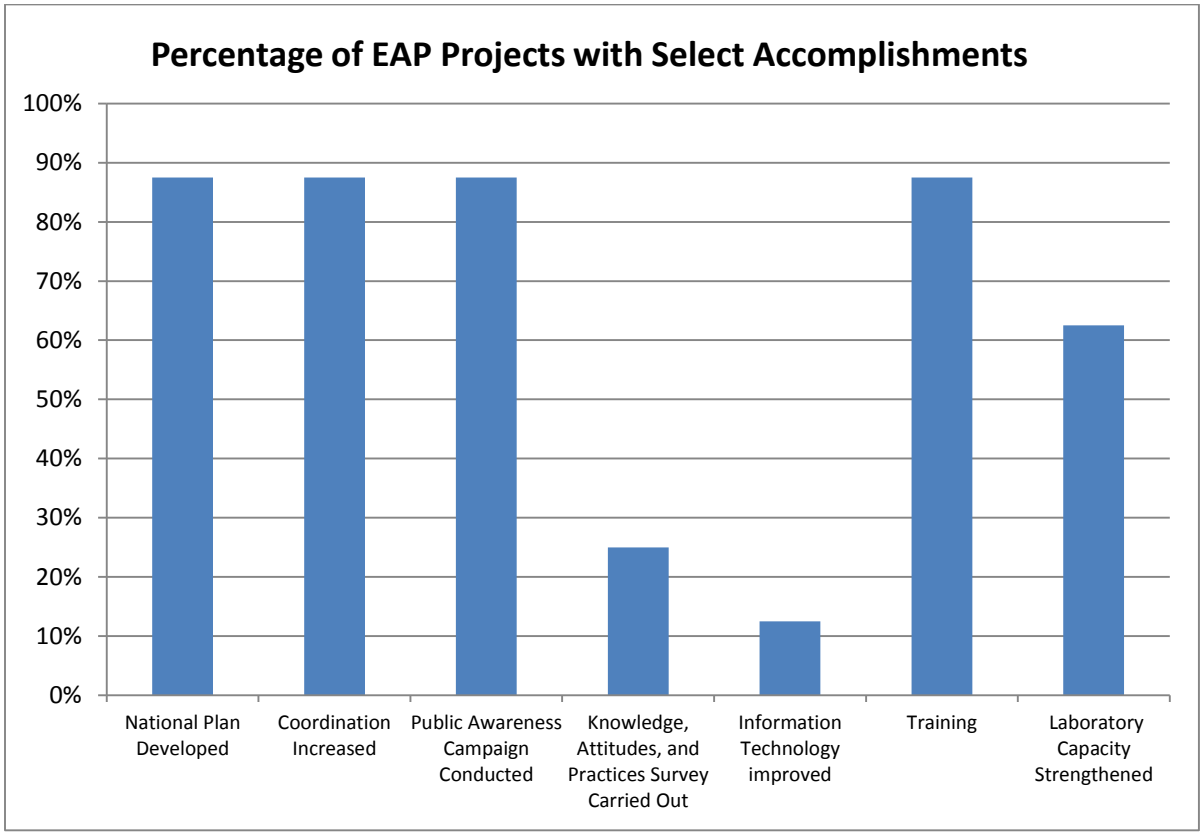
The East Asia and Pacific Region had eight projects that are included in this review. They took place in Cambodia, the People's Republic of China, Indonesia, Lao PDR, Mongolia, Myanmar, and Vietnam (2 projects).

Countries
Cambodia
China, People's Republic
Indonesia
Lao PDR
Mongolia
Myanmar
Vietnam

Of the eight projects in the EAP Region, 7 projects (88 percent) developed a national action plan, increased coordination, and carried out public awareness campaigns. Two projects (Vietnam and Cambodia) conducted a Knowledge, Attitudes, and Practices survey and one project improved the use of information technology. Seven of the eight projects carried out training, and five of the eight (63 percent) strengthened laboratory capacity.

Note that as part of the international response, other partners provided support in a range of areas. Thus, in the summary project accomplishment briefs below, "not included" reflects selection of support from the World Bank and/or lack of specific references in project documentation.

Project-specific outputs are outlined below.



Source: Authors' analyses.

CAMBODIA

Below is a table highlighting some accomplishments by the Avian and Human Influenza Control and Preparedness Emergency Project in Cambodia, carried out within the GPAI.

Project Information	
Country	Cambodia
Region	EAP
Project Name	Avian and Human Influenza Control and Preparedness Emergency
ID	P100084
Project Cost (US$ m)	11
FY of First Approval	FY08
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Improved rapid response capability for suspected animal and human disease outbreaks • Purchased and delivered 200 motorcycles and motor vehicles • Improved efficiency in avian influenza reporting, surveillance, outbreak investigation and emergency response • Trained 7,688 village animal health workers, 4 national and 42 district veterinarians
Animal health (disease control; compensation; biosecurity)	• Trained over 600 poultry farmers and 200 traders on bio-security measures for poultry production and sale • Promoted adoption of two or more disease preventive measures recommended under the "Healthy Livestock, Healthy Village, Better Life" scheme in more than 30 villages
Human health (incl. pandemic preparedness in health sector)	• Trained 500 health professionals on case management and infection control • Trained 26 medical students in applied epidemiology
Public awareness and communication	• Developed and disseminated Information, Education, and Communication (IEC) materials including posters, leaflets, T-Shirts, caps, guide books • Conducted awareness-raising campaigns have been conducted • Carried out KAP survey
Coordination between animal and human health systems	• Increased response capacity in provincial Animal Health, Human Health and Disaster Management units • Carried out seven multisectoral training courses
Pandemic preparedness (multisectoral plans and simulations)	• Improved National Comprehensive Avian and Human Influenza Plan • Translated Good Governance Framework into Khmer • Carried out one desktop simulation
Implementation support and M&E; coordination among partners	• Established Monitoring and Evaluation system • All three relevant agencies are able to prepare good quality reports

CHINA, PEOPLE'S REPUBLIC

Below is a table highlighting some accomplishments by the Capacity Building for HPAI Prevention and Human Influenza Pandemic Preparedness Project in the People's Republic in China, carried out within the GPAI.

Project Information	
Country	China, People's Republic
Region	EAP
Project Name	Capacity Building for HPAI Prevention and Human Influenza Pandemic Preparedness
ID	P104264
Project Cost (US$ m)	2.65
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Trained 100 percent of human and animal health workers at township and county levels trained • Trained 10 people to Master's Degree in Epidemiology of animal diseases, and modern data and analysis tools introduced and practiced • Developed and tested (1) a rapid influenza containment plan, (2) a risk communication strategy, and (3) a sector specific business continuity plan in six project countries • Established National Policy for Avian Influenza prevention
Animal health (disease control; compensation; biosecurity)	• National AI-free Compartmentalization Policy for Poultry Rearing developed
Human health (incl. pandemic preparedness in health sector)	• Trained 100 percent of human and animal health workers at township and county levels trained • Distributed rapid response kits, SOP, and training materials • Trained staff in using rapid response kits
Public awareness and communication	• Developed risk communications plan • Developed a toolkit for HPAI risk communication • Carried out spokesperson training
Coordination between animal and human health systems	• Improved coordination between agriculture and health, including collaboration on Avian Influenza and pandemic influenza • Put in practice One Health Approach
Pandemic preparedness (multisectoral plans and simulations)	• Developed 6 pandemic preparedness plans • Carried out 17 simulation exercises
Implementation support and M&E; coordination among partners	• Improved implementation support and monitoring and evaluation techniques

INDONESIA

Below is a table highlighting some accomplishments by the Avian and Human Influenza Control and Preparedness Project in Indonesia, carried out within the GPAI.

Project Information	
Country	Indonesia
Region	EAP
Project Name	Avian and Human Influenza Control and Preparedness
ID	P103654
Project Cost (US$ m)	15
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Increased participatory disease surveillance and response activities in 70 districts • Trained 40 Community Vaccination Coordinators and 680 Community Vaccinators • Carried out surveillance pilot
Animal health (disease control; compensation; biosecurity)	• Vaccinated 287,000 chickens • Registered 20 avian influenza vaccines for use in poultry
Human health (incl. pandemic preparedness in health sector)	• Not Included
Public awareness and communication	• Trained more than 3,000 people in two-day training sessions • •Carried out community vaccination campaigns in all 10 districts • Trained more than 3,000 people in information, education, and communications
Coordination between animal and human health systems	• Developed national avian influenza strategy
Pandemic preparedness (multisectoral plans and simulations)	• Developed new participatory disease surveillance and response strategy with a wider focus to include other zoonoses
Implementation support and M&E; coordination among partners	• Not Included

LAO PDR

Below is a table highlighting some accomplishments by the Avian and Human Influenza Control and Preparedness Project in Lao, PDR, carried out within the GPAI.

Project Information	
Country	Lao PDR
Region	EAP
Project Name	Avian and Human Influenza Control and Preparedness
ID	P100081
Project Cost (US$ m)	13.56
FY of First Approval	FY06
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• 100 percent of the targeted influenza specimens are tested, and 100 percent of avian influenza specimens have been tested within 24 hours • Trained 100 percent of targeted laboratory staff for highly-pathogenic avian influenza diagnosis, trained 100 percent of surveillance workers and health staff in disease surveillance • Carried out training at 8 influenza surveillance sentinel hospitals • Village Veterinary Workers' (VVW) hotline; trained 3500 VVWs
Animal health (disease control; compensation; biosecurity)	• Trained 73 percent of backyard poultry producers in targeted regions biosecurity improvement • Trained 100 percent of commercial poultry producers about biosecurity improvement • Culled over 350,000 birds • Implemented compensation program with a compensation rate between 20 percent-60 percent of value of birds • Shortened time-to-payment for compensation
Human health (incl. pandemic preparedness in health sector)	• Improved staff knowledge of infection control
Public awareness and communication	• Developed communication strategy and action plan
Coordination between animal and human health systems	• Established multisectoral avian flu teams in 100 percent of the Provinces • Signed Memorandum of Understanding between the Health and Agriculture sectors • Improved coordinated response to outbreaks • Developed plan for control of emerging diseases (including One Health)
Pandemic preparedness (multisectoral plans and simulations)	• Developed National Plan • Established National Committee for the Containment of Communicable Diseases • Established National Avian and Human Influenza Coordination Office and coordinated with the National Emerging Infectious Disease Coordination Office
Implementation support and M&E; coordination among partners	• Carried out capacity building of government staff in financial management and procurement

MONGOLIA

Below is a table highlighting some accomplishments by the Avian and Human Influenza Preparedness Project in Mongolia, carried out within the GPAI.

Project Information	
Country	Mongolia
Region	EAP
Project Name	Avian and Human Influenza Preparedness
ID	P104867
Project Cost (US$ m)	4.66
FY of First Approval	FY08
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Reduced average testing response time • Conducted annual AI surveillance among wild birds and poultry • Institutionalized AI surveillance among poultry • Set up 22 multidisciplinary rapid response teams
Animal health (disease control; compensation; biosecurity)	• Accredited 3 provincial veterinary laboratories
Human health (incl. pandemic preparedness in health sector)	• Influenza-like illness reporting initiated in all 21 districts
Public awareness and communication	• Sponsored bimonthly newsletters and national Influenza workshops • Conducted risk assessments • A manual on zoonotic disease risk assessment has been developed
Coordination between animal and human health systems	• Developed, installed and completed training on Incidence Response Information System • Carried out review of effectiveness of common disinfectants • Set up 22 joint response teams • Developed and implemented One Health coordination
Pandemic preparedness (multisectoral plans and simulations)	• Revised National Strategy and Action Plan • Developed National Animal Health Strategy • Conducted 16 drills and exercises
Implementation support and M&E; coordination among partners	• Developed monitoring and evaluation manual

MYANMAR

Below is a table highlighting some accomplishments achieved by the Support to Prevention and Control of Avian and Human Pandemic Influenza Project in Myanmar, carried out within the GPAI.

Project Information	
Country	Myanmar
Region	EAP
Project Name	Support to Prevention and Control of Avian and Human Pandemic Influenza
ID	P104058
Project Cost (US$ m)	1.315353
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Generated data on the prevalence of infection with H5 viruses, including GPS data on location of poultry farms • Trained 1,200 field personnel (veterinarians, veterinary students) and nearly 1,000 community animal health workers in disease monitoring and surveillance • Tested 120,000 serum samples • Improved capacity for early detection • Carried out 25,204 effective surveillance activities, 16,848 Community Animal Health Workers (CAHW) round checks, 6,000 CAHW clinical checking of flocks, and 1,216 pig H1N1 farm visits
Animal health (disease control; compensation; biosecurity)	• Trained poultry farmers on appropriate • biosecurity measures • Established national GPS database of commercial poultry and pig farms • Employed alternative compensation methods • Improved biosecurity among farmers
Human health (incl. pandemic preparedness in health sector)	• Strengthened capacity to respond to pandemic or influenza outbreak in humans
Public awareness and communication	• Designed and carried out training and communications activities to provide information to farmers on risk pathways for introduction of pandemic threats
Coordination between animal and human health systems	• Established National Steering Committee to coordinate response and facilitate strategic discussion
Pandemic preparedness (multisectoral plans and simulations)	• Developed Risk Management Plans for 10 border, 6 wetland and 5 poultry concentrated areas • Established National Response Plan and Steering Committee
Implementation support and M&E; coordination among partners	• Completed 7 integrated work plans with Monitoring and Evaluation methodologies

VIETNAM

This table highlights some accomplishments by two projects in Vietnam, carried out within the GPAI.

Project Information		
Country (Region)	Vietnam (EAP)	Vietnam (EAP)
Project Name	Avian and Human Influenza Control and Prevention	Avian Influenza Emergency Recovery
ID	P101608	P088362
Project Cost (US$ m)	38	6.37
FY of First Approval	FY07	FY05
Component	**Accomplishments**	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Established Community Animal Health Workers and telephone hotlines • Improved diagnostic capacity of the national and regional laboratories • Animal Health Office awarded international accreditation • Technical training of 5,278 animal health workers in districts and 21,025 in communes. • Developed commune-level surveillance software and early warning system	• 30 Community-based surveillance systems operational • Completed 100 percent monitoring of breeding farms, 75 percent average monitoring overall • Upgraded National Veterinary Diagnostic Center and four Regional Veterinary Centers • Dedicated diagnostic laboratory equipment, reagents and consumables, and training
Animal health (disease control; compensation; biosecurity)	• Upgraded bio-security measures at 31 live bird markets, 31 slaughterhouses, and 52 farms • Trained 1,760 small poultry farmers • Successful vaccination trial for young ducks • Built poultry destruction/ disposal site	• Delivered 13,100 breeding birds • Completed comprehensive study on compensation and related financial support strategy for avian influenza
Human health (incl. pandemic preparedness in health sector)	• Provided essential equipment to 2665 communes to improve their capacity for emergency disease containment • 30 ambulances for provincial and district hospitals and other supplementary equipment and facilities for eight provincial hospital and 87 district hospitals • Trained more than 11,500 health staff	• Not Included
Public awareness and communication	• Conducted KAP surveys • Trained provincial, district, commune and village health workers • Printed and disseminated 4 million leaflets and posters and 15,000 AI guiding books • 10 provincial awareness campaigns	• Trained trainers at National Agricultural Extension Center • Trained extension staff • Prepared and distributed publication materials and multi-media messages
Coordination between animal and human health	• Carried out joint simulation exercises between human health and animal health sectors	• Developed National Emergency Contingency Plan
Pandemic preparedness (multisectoral plans and simulations)	• Developed and exercised multisectoral National Emergency Contingency Plan	• Developed multisectoral National Emergency Contingency Plan
Implementation support and M&E; coordination among partners	• Not Included	• Established administrative linkages between the project coordination unit and the implementation agencies/entities

EAST ASIA AND PACIFIC REGION CASE STUDIES

Below are selected case studies of GPAI interventions in the EAP Region. These case studies are intended to complement the country overviews and provide greater depth and detail regarding the operations of the GPAI.

Cambodia: An Example of Subnational Pandemic Planning

Cambodia established a National Working Group on Pandemic Planning to develop agreed inter-ministerial coordination mechanisms and multisectoral operational response plans for a pandemic emergency. The National Center for Disaster Management has been officially assigned as the coordinating body for multisectoral preparedness.

A sub-national pilot project in Siem Reap province developed a multisectoral operational pandemic response planning process. Key features of the process included:

- Dynamic group participation,
- Acknowledgement of the necessity for self-reliance
- An emphasis on the need to plan around currently available resources.

This approach has created one of the first and few opportunities for disparate government departments to plan together, and is attracting the active involvement of civil society groups and private businesses and the Cambodian Red Cross has been identified as a key stakeholder in the process.

Key outputs included:

- A model provincial pandemic response plan, including standard operating procedures for each sector;
- Identification of policy gaps by operational personnel to inform national-level planning; and
- A documented process to identify lessons learned by the University of Melbourne to also inform further extension of planning in Cambodia and other national or regional contexts.

Source: Pandemic Influenza Contingency (PIC) Team, OCHA and WHO Cambodia

Donor and Government Coordination in Joint Implementation Review in Lao PDR

The principles of coordination and integrated action that underpinned the Lao PDR National Avian Influenza Control and Pandemic Preparedness Plan 2006-10 ("the National Plan") were tested in February-March 2007 when all levels of government, affected communities, and development partners responded to AI outbreaks. These outbreaks resulted in 2 human deaths from infection with the H5N1 avian flu (a poultry disease), over 350,000 poultry were culled, and 560,000 eggs were destroyed.

Learning and responding to the lessons of this experience was a complex, challenging but essential process. Over a three-week period between April and May 2007, 27 representatives from 10 international agencies worked side by side with more than 50 of their Government counterparts to undertake a comprehensive joint implementation review (JIR) that examined each of the five strategy areas that comprise the National Plan.

The implementation review was structured to improve coordination efforts among development partners in order to avoid duplication of efforts and build on synergies. Officials and representatives from technical and development partners worked together in groups corresponding to the five National Plan strategy areas and each contributed to a detailed collective assessment of the strengths and weaknesses of the implementation process to date. The JIR demonstrates that the Government and its development partners can work effectively together on the AHI response with the flexibility necessary to respond rapidly to emerging priorities.

Source: World Bank

Joint and Coordinated Activities by Animal and Human Health Teams at Local Level in China

Problem and Context. China has a critical role to play in the international response to AHI given its size and population, the significance of China's poultry industry, and the frequency of H5N1 outbreaks to date. The government has formulated a comprehensive response to potential AHI threats. However, there are particular challenges facing the central and sub-national governments in coordinating a response in such a large and diverse country. Detailed technical assessments of China's response indicated that early warning and surveillance capacity -- particularly at the grass roots level -- required considerable strengthening. Rapid response at the grass roots level to investigate and contain human clusters of disease with outbreak potential has often been implemented by different sectors in an uncoordinated way. Identification of how the overall response and its coordination can be improved is key, given the wide range of ministries and agencies involved -- especially those operating at the local level.

Approach and Activities. Under the GPAI, a grant from the AHI Facility supported AHI response capacity at the county level and at the sub-national level in two Provinces (one has a largely intensive farming system while the other has predominantly backyard farming systems). This support at the local level was complemented by support to the central government in providing technical assistance to pilot local operations as well as to develop knowledge sharing activities that will support the dissemination and exchange of international experience and operational good practice that is emerging from the field.

Focus was on enhancing prevention and control of animal-to-animal, animal-to-human, and human-to-human transmission, to strengthen the national plan for HPAI and human pandemic influenza, and to establish mechanisms to enhance transparent, real time multisectoral communication between officials involved at all levels of government. There was emphasis on support to officials at the grass roots (county) level with the specific objectives of: improving coordination and communication between central and lower levels of government; enhancing the level of human pandemic influenza preparedness amongst animal and human health staff through the provision of training and drills; and, developing health promotion awareness campaigns to effect behavioral change in key vulnerable societal groups.

Results. 1. The project has supported the training of local human and animal health staff together by using some common modules for workers from both sectors. Similarly, animal and human health investigation and response team exercises have jointly undertaken drills at local levels to foster a coordinated response. This has led to recognition by the two sectors of how important it is to work together, indeed, to a greater extent than has been true at the central government level. 2. It has been found more effective to have international and domestic experts participate in seminars on international experience and then let the Chinese officials internalize the implications--this in preference to consultants pointing out shortcomings in the Chinese response system, particularly with respect to surveillance. 3. These efforts have also contributed to a move away from a primary reliance on vaccination campaigns to more emphasis on surveillance and other prevention/response strategies (biosafety, etc).

Next Steps and Remaining Challenges. 1. Experiences at local levels with the benefits of intersectoral coordination need to be better reflected in the national plans and strategies. 2. Attention now needs to be given to effective ways of scaling up these lessons for broader implementation across the country. If successful, the pilots have the potential to identify a more integrated disease response strategy for AHI and other emerging and reemerging infectious diseases. Moreover, if this can be achieved in a country of China's size, it offers important operational insights for other large countries. 3. Multisectoral pandemic planning is still quite limited, but the experience could yield lessons for other developing countries to follow. 4. The project is contemplating building a more multidimensional approach to surveillance. The all-hazards approach would include a range of key risk factors, using an event-based approach.

Source: World Bank

Participatory Disease Surveillance and Response in Indonesia

Participatory Disease Surveillance and Response (PDSR) is a system that combines quantitative epidemiology with a qualitative approach known as Participatory Epidemiology (PE). Participatory epidemiology is the collection of epidemiologic information using participatory approaches, such as those that are commonly employed in Participatory Rural Appraisal (PRA). Participatory disease searching and disease reporting make a surveillance system sensitive and timely. Results can be more representative when appropriately applied as part of an overall surveillance program. Participatory disease searching and disease reporting provide an effective and logistically feasible means of improving the timeliness of outbreak detection, reporting, and response, as well as broadening the scope of surveillance to include neglected or marginalized livestock populations, such as village poultry and small-scale poultry producers. Participatory disease response uses participatory principles to support a community-based response to control HPAI. It also catalyzes participatory planning to help communities organize themselves and mobilize their own resources to prevent the occurrence of HPAI in their villages.

Use of PDSR served to strengthen veterinary services and to empower communities in Indonesia. The first phase of the PDSR project emphasized the detection and control of HPAI by PDS and PDR teams primarily in village (sector 4) poultry, in households. Lessons included:

- The importance of strengthening the knowledge base and capacity at community level in order to better understand the origin, prevention and control of poultry diseases (especially HPAI);
- Taking a village-level approach to work with all poultry farmers, traders and community leaders within the village (including sector 3) for effective and efficient disease prevention and control;
- Linking with, and capacity building of, the veterinary services through PDSR activities; and
- Actively involving local government and human health services in PDSR activities as well as the overall HPAI Control Program.
- PDSR assists the overall effort towards disease management and as such forms an integral part of the national HPAI control strategy.

The second phase of the PDSR project expanded participatory activities to enable all key stakeholders, from local communities to district, provincial and central governments, to have a voice in HPAI prevention and control. The program was expected to culminate in a community-based animal disease prevention and control program that becomes an integral part of provincial and district livestock services and which is adequately funded through government budgeting.

By May 2008, 2,112 PDSR officers have been trained and are working in 331 districts across 27 of Indonesia's 33 provinces. From January 2006 to April 2008, PDSR officers had made a total of 166,524 surveillance visits, conducted 65,309 outbreak responses, and worked with over one million community members.

The effectiveness of the PDSR system was evident during the outbreak of HPAI in a village in North Sumatra province. PDSR officers were called to the village by a subdistrict official. They diagnosed HPAI on the basis of clinical signs and positive rapid test. Poultry in the village were culled and decontamination conducted. The PDSR officers informed the local government including human and animal health authorities. Human health surveillance officers performed an investigation in the village the next day. Two days after the first notification, suspected H5N1 human cases had been admitted to hospital. (On this occasion, all suspect human cases did not have H5N1 avian flu infection.)

Source: FAO

Pandemic Response Simulation Exercise in Indonesia

The Government of Indonesia conducted a full-scale three-day pandemic simulation exercise in April 2008, to test and later revise the protocols and operational capacity of Indonesia to promptly and effectively contain an epicenter of human-to-human transmission of a novel influenza virus.

It was one of the largest full-scale pandemic influenza emergency response simulation exercises. The core objectives of the simulation were:

- To establish well-tested capability at the central, provincial, district and local levels to rapidly respond to a pandemic influenza outbreak;
- To establish well-tested and effective protocols and operational plans to be used to contain an outbreak of pandemic influenza;
- To establish positive inputs that can be used to strengthen the influenza pandemic containment plan.

As one of the first simulations exercising the operational coordination across multiple sectors and jurisdictions, the exercise involved more than 8 months of planning and included nearly 1000 planners and participants as well as more than 200 international and local observers. The value in preparing for the exercise was two-fold: it engaged exercise participants to brainstorm through several sessions to understand the intricate concepts related to outbreak containment; and it provided an opportunity to train local officials from multiple jurisdictions, core simulation centers, controllers, simulators, evaluators and administrators in simulation design and implementation.

Sectors participating in the full-scale exercise included hospitals, the Ngurah Rai International Airport, the Armed and Police Forces, the National Commission for Avian Influenza and Pandemic Influenza, and Ministries of Health, Environment, Internal Affairs, Foreign Affairs, Agriculture, Communication and Information, and Social Welfare. Key issues addressed through the exercise included:

- Command and coordination;
- Risk communication;
- Surveillance;
- Logistics of supplies and services, including port health;
- Distribution of essential medical supplies including anti-virals, personal protective equipment, vaccine;
- Non-pharmaceutical interventions and area quarantine.

In this simulation exercise, the planning process was just as important as the exercise itself.

At the conclusion of the simulation, feedback and observations were collected and consolidated from the observers through evaluative meetings. All this information and lessons contributed towards producing final guidelines, protocols and operational procedures for outbreak containment, included in a training program for all local jurisdictions (provinces and districts) through the framework of a train-the-trainer module. These materials and information are essential for increasing advocacy for preparedness and to conduct pandemic preparedness training and simulations.

Source: UNSIC Bangkok Office PanSimEx Booklet

Frontline Early Detection of Infected Backyard Poultry by Alert Locals in Lao PDR

The "how" an outbreak is detected is as important as the "what." In Lao PDR in February 2008, an outbreak in backyard poultry was notified by a village veterinary worker (VVW) in a remote, ethnic-minority area that had never received significant services from the government. The VVW had been trained only 3 weeks prior, by mechanisms provided by FAO, CARE and the National Animal Health Center. As the first case detected in backyard poultry as opposed to commercial farms, the incident showed the importance of community-based initiatives for early detection and triggering of rapid control measures.

Establishing an animal disease reporting network down to the village level was clearly critical in Lao PDR for early detection and notification of outbreaks. Training of VVWs started in 2006 in all provinces, and included basic avian influenza knowledge and teaching methods. The initiative continued to expand in 2007 (training 1,645 people) and 2008 (over 2,600 trained by June). A national hotline was established. Empowered with training, knowledge and the skill to detect the signs and differential diagnosis of poultry diseases, VVWs have been key in addressing the challenges of surveillance in backyard poultry systems.

Source: FAO/ UNICEF LAO PDR

Mongolia: Innovative Commitment by an At-Risk Country

Problem and Context. Mongolia's small poultry industry has not seen outbreaks of HPAI. A few confirmed outbreaks have occurred in wild birds (other infections may have occurred but not been detected due to limited surveillance). However, Mongolia lies within the three major flyways where infection from the AHI Asian epicenters of China, Indonesia and Vietnam intersect with those of Western Europe. It also has over 40 large lakes. Other species such as canids, pigs, camels and horses, which are susceptible to influenza viruses, all use waterways frequented by wild birds. This and cross-border challenges to preventing transmission, exchanging information and ensuring coordination make Mongolia pivotal for monitoring AHI's global spread and demonstrate the central importance of an integrated disease response.

Approach and Activities. The Government implemented a three-year, National Strategy and Action Plan for Avian and Human Pandemic Influenza. Complemented by animal and human health strategies, the National Strategy focused on: improving outbreak and disaster response at the national and aimag (provincial) levels, wild bird surveillance, early warning and response systems, bio-security measures in poultry production and health facilities, and hospital capacity for better management of patients.

A unique and promising activity was building of an Incidence Response Information System (IRIS). This GIS based system maps risks to facilitate response capabilities. It maps key data (presence of veterinarians, number of households, livestock, health facilities, etc.) needed by disease prevention and control efforts to define catchments, set the boundaries for response efforts, etc. The National Emergency Management Agency (NEMA) can thus work jointly with medical and veterinary personnel to respond to any outbreaks of HPAI in poultry or humans. While initially intended for HPAI, IRIS can help combat other diseases and thus serve as a cross-sectoral platform for work on diseases at the animal-human interface.

Results. A notable feature was the close collaboration between the government, World Bank and UN technical agencies. This was true from the project inception mission and continued, as all agencies worked hard to collectively define the challenges and articulate solutions. The Ministry of Health worked with WHO, and the Ministry of Agriculture worked with FAO on animal health concerns. NEMA undertook overall coordination, particularly on monitoring and evaluation. These partnerships have helped overcome the usual sectoral boundaries and have led to an unusually high degree of collaboration across sectors and agencies in the formulation of a pandemic influenza preparedness and response plan.

Remaining Challenges. Mongolia's sparse population and its herder culture and society set it apart. The project's methodology, however, has clear applications for other herder societies where animal-human interaction is commonplace and where zoonotic diseases impact on lives and livelihoods. Livestock is a large part of the economy and animal diseases, including zoonotic ones, have a macroeconomic impact if not adequately controlled. Thus, there are benefits from comprehensive, integrated animal and human health surveillance and disease response.

Source: World Bank

Sustaining an Effective Response in Vietnam

Since the first AI outbreak in 2003, Vietnam has been at the forefront of efforts to address a disease that then spread across Asia, Western Europe, Africa and the Middle East. As in the SARS outbreak less than one year prior, Vietnam's experience with HPAI has underscored the importance of early detection and response, backed by strong coordination within the human, animal and other sectors.

AI has proven costly to Vietnam. Since the first outbreaks, Vietnam has reported 100 human cases, 46 of which have proven fatal – figures exceeded only by Indonesia. In the poultry sector, successive outbreaks initially overwhelmed provincial veterinary services. Surveillance infrastructure and laboratory facilities for diagnosis and monitoring of the progress of the disease were limited. Widespread outbreaks were contained but only through rapid and massive culling of diseased as well as unaffected birds. These efforts caused losses representing close to 15 percent of the national flock and come at a direct cost of more than US$200 million or 1.5 percent of GDP.

Control of successive AI outbreaks required stringent containment measures including the establishment of regulations to close all live poultry markets, the introduction of movement controls at the district level, and bio-security measures in de-stocked commercial facilities. The enforcement of these measures was particularly challenging and required extraordinary political and organizational efforts to initiate and sustain the containment "package" at all levels.

At the central level, a high level Steering Committee has met weekly to guide the national response and ensured that directives were issued and disseminated effectively throughout the country. At the provincial level, AI Steering Committees reporting directly to the Provincial People's Committees (PCC), drew on various social mobilization mechanisms including mass organizations such as the Women's Unions and Fatherland Front, and were successful at coordinating the response, controlling activities across sectors, mobilizing resources for AI activities, and promoting accountability of the sectors involved to the highest provincial authority. The government also adopted nationwide poultry vaccination commencing late 2005, mobilizing tens of thousands of vaccinators at the local level. The application of this intensive–and distinctively Vietnamese approach–coincided with dramatic reductions in human and animal cases. No human cases were recorded in an 18-month period and, although the virus was still present in the environment, no poultry cases were reported during the period December 2005-December 2006.

However, the resurgence of infection in late 2006 and again in May 2007, following this period of effective – or at least apparent –control has posed a substantial challenge for policymakers. Do these outbreaks point to "fatigue" in or weakening of the social mobilization mechanisms that appeared to have been so effective in initial emergency? Is the costly investment in mass poultry vaccination – previously associated with effective control of outbreaks – still warranted given that outbreaks have returned? Can veterinary services keep pace with the substantial increase in duck production now that the previous ban on duck hatching has been lifted? Can the nationwide response be reinvigorated and re-established on a more sustainable basis so that it can be as effective in – as well as in the absence of – an emergency?

Once again, Vietnam geared up to confront frontier issues. The main challenge was clear: to move from emergency response to medium and long-term integrated disease control and prevention measures for both human and poultry populations. There was also a need to consolidate the significant progress already achieved whilst reducing the overall cost of control. For animal health, the challenge was to transition from mass vaccination to risk-based interventions such as targeted vaccination and surveillance that will maintain disease control at lower cost.

For the human health sector, it is encouraging that Vietnam's case fatality ratio is lower than both the global average (46 percent vs. 61 percent) and that of the other most affected country, Indonesia (81 percent). However, significant human resource and other constraints in the health system need to be addressed to ensure there is sufficient capacity to respond should the virus become more easily transmissible for humans or, even worse, become the next pandemic virus.

Source: Adapted from inputs from the World Bank, FAO, WHO and UNDP

Mekong Basin Disease Surveillance Network

The Mekong Basin Disease Surveillance (MBDS) is a network of six Mekong countries (Cambodia, China (Yunnan Province), Lao PDR, Myanmar, Vietnam and Thailand) which since 2001 has been collaborating successfully in surveillance and outbreak response and control. The partnership was reinforced in May 2007 through renewal of an MOU among the six Health Ministers. The collaboration provides a neutral mechanism for information exchange and joint response by countries with different political structures. It encourages sharing of information and strengthens disease surveillance and response to outbreaks of diseases such as avian influenza and dengue hemorrhagic fever.

Main aims are: (a) strengthening national capacity in disease surveillance, outbreak investigation and response; (b) strengthening health manpower, development in field epidemiology; and (c) establishment of a sub regional surveillance network. Since 2006 activities of MBDS Network included:

- Cross-border information exchange
- Information exchange carried out daily to quarterly depending on the disease.
- Joint outbreak investigation and response.
- A joint avian influenza investigation was triggered by the finding of an infected Lao citizen in Thailand. Investigation support from Thailand reached Laos within 24 hours after discovery.
- Joint Vietnam and Lao PDR investigations for outbreaks of typhoid and malaria.
- Training of health personnel.
- During 2006-2007 110 workers were trained in either field epidemiology and disease surveillance, analytical techniques or social, political and economic aspects of border health.
- Disaster preparedness and table top exercises.
- Each country conducted tabletop exercise on an effective response to an influenza pandemic in 2006, and a regional table top exercise took place in March 2007 by convening multisectoral officials from six countries.

Overall impact and achievements:

- MBDS provides a policy framework for cross-border cooperation and model for collaboration.
- MBDS demonstrates systems that facilitate implementation of the International Health Regulations.
- Ministries of Health in the network have empowered bilateral and multilateral investigations of disease outbreaks through MBDS.

Source: Adapted from information supplied by MBDS Project office and Rockefeller Foundation

Gathering Evidence for a Transitional Strategy for Poultry Vaccination in Vietnam

Vietnam has been practicing mass vaccination of poultry twice a year (October and April) since autumn of 2005 to control epizootic H5N1 HPAI with some considerable empirical evidence of success. However, it has been recognized that this control strategy is not sustainable over the whole country in the long term. Mass vaccination entails a large amount of financial resources from the government and ties up significant human resources in the agriculture sector.

The Gathering Evidence for a Transitional Strategy (GETS) project assisted the Government of Vietnam in transitioning from mass vaccination of poultry to more cost effective and targeted measures for sustained control of HPAI in five high and low risk provinces. The project used a multidisciplinary approach to gather data consisting of a vaccine strategic intervention that incorporates public awareness, training and surveillance field activities, a cost effectiveness component, a sociological behavioral component and a policy analysis component. The results of the field data were provided to the Ministry of Agriculture and Rural Development of Vietnam to assist them in their choice of future vaccination strategy for HPAI.

Source: FAO

Vietnam's Emergency Response to Avian Influenza Created a Model of Resilience

In December 2003, Vietnam experienced its first cases of Highly Pathogenic Avian Influenza (HPAI) H5N1. Within four months the disease had spread to 57 of 64 provinces, and 44 million poultry - 17 percent of the nation's stock - had died from the disease or been culled to prevent further outbreak. Veterinary health and disease surveillance systems were rapidly overwhelmed, and with 15 human deaths recorded in 2004, the threat was raised of a potential pandemic.

Vietnam's Avian Influenza Emergency Recovery Project (AIERP) was the world's first comprehensive HPAI emergency response operation. It was fully implemented in less than three years in the ten provinces worst hit by the virus and helped enhance national disease surveillance and diagnostic capacity, strengthened mechanisms in the poultry sector to contain serious outbreaks, and safeguarded public health by raising awareness of risks and how to mitigate them. The project provided a platform for action, allowing the government to articulate and lead a concerted response with donors, international technical agencies and civil society. Complementary efforts supported by the Government of Japan helped low-income stakeholders recover from losses caused by the epizootic.

A core team of experts on animal health, veterinary epidemiology, poultry vaccination and poultry production from FAO worked with government counterparts to devise measures to control the outbreak. Close attention was focused on ensuring that the response (for example, in designing, testing and monitoring a poultry vaccine) kept pace with the rapidly evolving threat, while enabling the government to craft a longer-term strategy through investments to upgrade capacity, institutions and key health systems.

Work was undertaken on investments in critical systems to mitigate the threat of HPAI. Vietnam's approach informed the design of programs in 60 countries under the GPAI. The project focused on containing the disease at the animal source as the most effective and efficient way of reducing socioeconomic damage and the risk of widespread contagion among human populations.

Highlights of the program included:

- Development and adoption in December 2005 of a national Emergency Contingency Plan which has become a model for many developing countries in containing a disease outbreak;
- Disease control measures have prevented direct losses in the poultry sector estimated at more than US$58 million, and improved veterinary services have yielded the added benefit of better controlling several other animal diseases.
- Regular joint supervision missions by the World Bank and FAO facilitated quick fine-tuning in the disease control strategy. For instance, around midterm, the project helped design and monitor the world's first large-scale poultry vaccination program against the virus, coordinating some 100,000 vaccinators. Subsequently the strategy was adjusted to gradually replace blanket vaccination by ring vaccinations targeted to contain incipient outbreaks.
- Community-based early warning disease response systems were established in 30 districts of the 10 heaviest-hit provinces.
- Critical equipment and training provided to Vietnam's key diagnostic laboratories, including the national veterinary laboratory and four regional facilities, enabled complex sample testing to be completed within a week of an outbreak.
- Biosecurity was upgraded in all 12 poultry-stocking facilities throughout the country.
- Public awareness and information campaigns were launched in 1,700 communes and reached 51,000 villagers in the provinces most affected by HPAI. Communications training for veterinary and livestock extension staff was provided at the central, provincial, district, commune and village levels.
- Under restocking operations supported through the Japan Social Development Fund, 8,366 poor households received 1.22 million poultry that were bred and raised in biosecure conditions and vaccinated against avian influenza and other diseases. The overall mortality of restocked poultry from delivery to market was 7.7 percent, versus a background mortality rate of 47 percent for backyard poultry.
- Using the project to expand dialogue on coordinating donor assistance, the World Bank in April 2006 coordinated a government-donor joint-assessment mission—with 32 representatives from all relevant

ministries and 11 bilateral and multilateral organizations, including the Asian Development Bank, Denmark, France, Australia, New Zealand and the United States.
- A follow-up donor meeting in Hanoi in June 2006, attended by representatives from 30 donor countries and international agencies, pledged more than US$60 million for the AHI response in 2006–08.

The emergency project undertaken in the rush to cope with a rapidly evolving threat was designed as a pilot to develop and test a comprehensive strategy to control avian influenza in Vietnam. The project achieved its goals and laid the ground for a broader follow-up effort in 2007, the Vietnam Avian and Human Influenza Control and Preparedness Project (VAHIP) with an estimated cost of US$35 million. Close partnership between the government, the World Bank, and international agencies (primarily FAO and the World Health Organization, as well as with OIE) helped ensure that successful interventions are sustainable. Successful implementation of the emergency response project also provided lessons for other countries' programs, including those to respond to the H1N1 flu pandemic.

Source: World Bank

Field Epidemiology Training Program for Veterinarians

The goal of the Field Epidemiology Training Program for Veterinarians (FETPV) is to produce high- quality graduates who are problem solvers and can provide science-based recommendations for government decision makers.

A regional needs assessment identified key competencies and skills required by veterinary field epidemiologists. The training curriculum consisted of interdisciplinary training modules including animal disease surveillance, outbreak investigation, data analysis, animal-human-environmental interface, geographic information systems, emergency preparedness and response and market chain analysis.

Since the initial level of training in epidemiology in various countries varies greatly, a one-month pre-requisite course was offered to narrow the gap among trainees from different countries. Each year, at least three top performing trainees from the short course participated in the two-year FETPV program that included parallel training modules with medical doctors.

With principles based on "training through providing services", 75 percent of the trainees' time was spent in their home country conducting field studies. During the two-year program, trainees must have completed one secondary data analysis, one field research project and four outbreak investigations as principle investigator. Field mentors played a critical role in providing trainees sound skills, and included skilled epidemiologists from FAO.

The Regional FETPV program enlisted its second cohort of three international and three Thai trainees in June 2010. The pre-requisite short course and two-year program were fully supported by Chief veterinary officers in 12 participating countries in Asia (Lao PDR, Cambodia, Myanmar, Nepal, Indonesia, India, Thailand, China, Mongolia, Vietnam, Malaysia, and the Philippines). India and China developed satellite FETPV training nodes that can collaborate closely with the Regional FETPV.

The regional FETPV program exemplified the One Health approach, which promotes and integrates human, animal and environmental health, both conceptually and practically.

Source: FAO

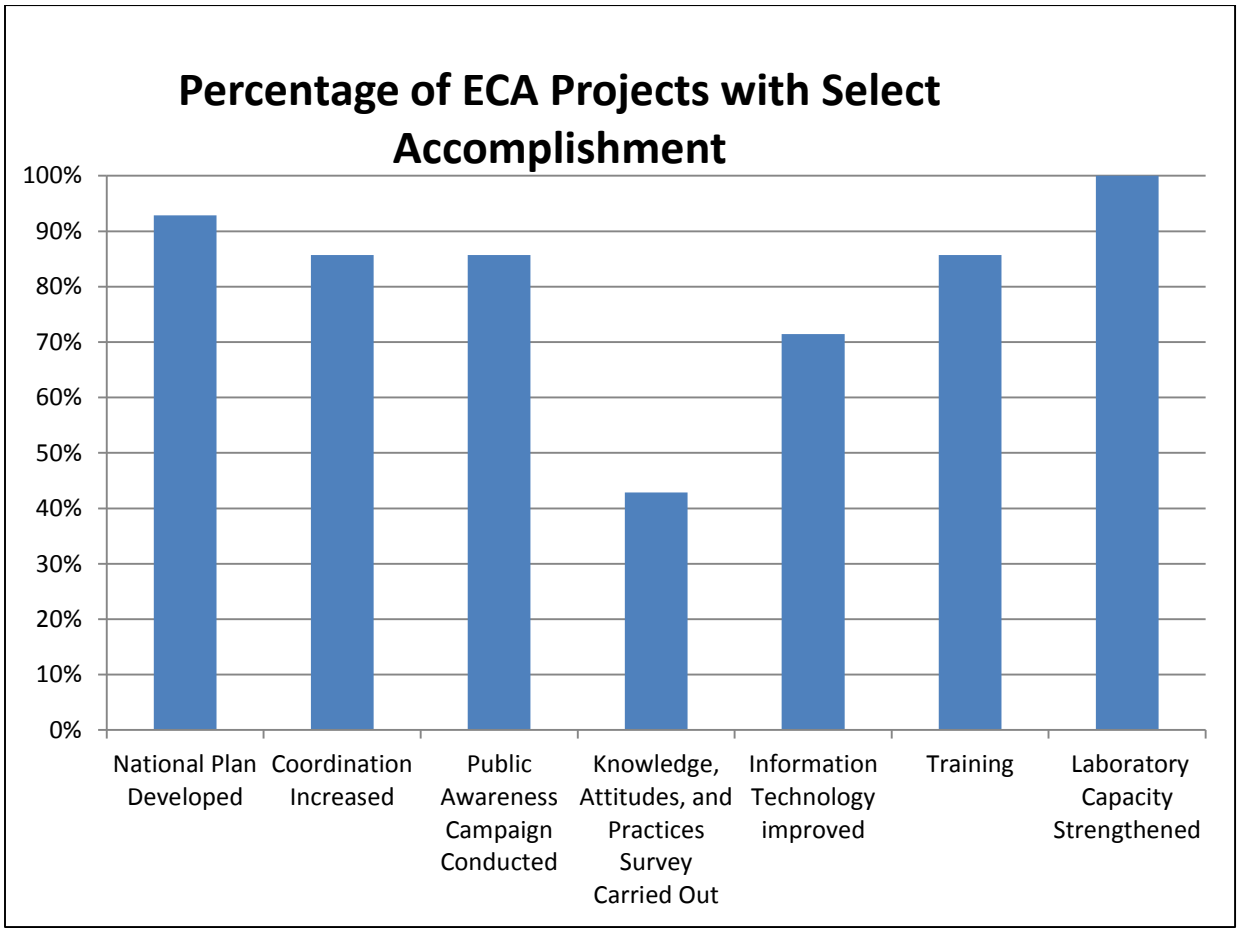
EUROPE AND CENTRAL ASIA (ECA)

The Europe and Central Asia Region (ECA) had 14 projects that are included in this review. They took place in Albania, Armenia, Azerbaijan, Bosnia-Herzegovina, Georgia, Kosovo, Kyrgyz Republic (2 projects), Moldova, Romania, Tajikistan, Turkey, Turkmenistan, and Uzbekistan. Of the 14 ECA projects, 13 (93 percent) developed national plans and 12 (86 percent) increased coordination. 12 projects carried out a public awareness campaign and six projects (43 percent) conducted a Knowledge, Attitudes, and Practices survey. Ten projects (71 percent) improved the use of information technology, twelve projects (86 percent) conducted training exercises, and all 14 strengthened laboratory capacity.

Countries
Albania
Armenia
Azerbaijan
Bosnia-Herzegovina
Georgia
Kosovo
Kyrgyz Republic
Moldova
Romania
Tajikistan
Turkey
Turkmenistan
Uzbekistan

Note that as part of the international response, other partners provided support in a range of areas. Thus, in the summary project accomplishment briefs below, an entry labelled “not included” reflects selection of support from the World Bank and/or lack of specific references in project documentation.

Project-specific outputs are outlined below.



Source: Authors' analyses.

ALBANIA

Below is a table highlighting some accomplishments by the Avian Influenza Control and Human Pandemic Preparedness and Response Project in Albania, carried out within the GPAI.

Project Information	
Country	Albania
Region	ECA
Project Name	Avian Influenza Control and Human Pandemic Preparedness and Response
ID	P100273
Project Cost (US$ m)	6.1
FY of First Approval	FY06
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Established the National Veterinary Epidemiological Unit • Rehabilitated national virology laboratory • Upgraded laboratory with new equipment (RT-PCR) and staff capacity • Trained 100 percent of State Veterinary Inspectors
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Procured 14,200 anti-viral drugs and inoculated 100 percent of the institute of public health and intensive care unit personnel • 3,100 samples received by lab, about 1,500 tested • Constructed Intensive Care Unit • 505 samples shipped in conformity to international standards • Procured 7,000 doses of Tamiflu
Public awareness and communication	• Distributed 120,000 printed leaflets, posters, field worker communication guides and television messages • Carried out two KAP surveys (2006, 2009) • Trained 216 education professionals
Coordination between animal and human health systems	• Prepared contingency and preparedness plan
Pandemic preparedness (multisectoral plans and simulations)	• Prepared EU-compliant contingency plan highly-pathogenic avian influenza
Implementation support and M&E; coordination among partners	• Project coordination improved • Work plans and project reports completed

ARMENIA

Below is a table highlighting some accomplishments a by the Avian Influenza Preparedness Project in Armenia, carried out within the GPAI.

Project Information	
Country	Armenia
Region	ECA
Project Name	Avian Influenza Preparedness
ID	P099832
Project Cost (US$ m)	9.63
FY of First Approval	FY06
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Established functional surveillance and outbreak investigation capacity in percent100 of provinces • Enhanced diagnostic capacity • Carried out study on birds with high risk of avian influenza transmission • Established central disease information database • Trained 2300 staff influenza virus surveillance and control
Animal health (disease control; compensation; biosecurity)	• Compensated pig owners with government resources • Achieved bio-safety Level 3 • Established and equipped 40 mobile surveillance and rapid response teams
Human health (incl. pandemic preparedness in health sector)	• Procured and deployed supplies for 120 staff and 40 teams • Procured 66,000 doses of seasonal influenza vaccine and 2000 boxes of Tamiflu • Established three RT-PCR laboratories • Trained 3300 infectious diseases specialists, epidemiologists, general practitioners, pediatricians, family doctors, nurses, laboratory staff
Public awareness and communication	• Produced and disseminated informational products
Coordination between animal and human health systems	• Set up Inter-Ministerial Task Force for Avian Influenza. • Organized a series of workshops for key personnel of the State Food Safety and Veterinary Inspectorate and the State Epidemiological Inspectorate
Pandemic preparedness (multisectoral plans and simulations)	• Developed National AI strategic plan
Implementation support and M&E; coordination among partners	• Not Included

AZERBAIJAN

Below is a table highlighting some accomplishments by the Highly Pathogenic Avian Influenza Preparedness Project in Azerbaijan. It was carried out within the GPAI.

Project Information	
Country	Azerbaijan
Region	ECA
Project Name	Highly Pathogenic Avian Influenza Preparedness
ID	P066100
Project Cost (US$ m)	6.115
FY of First Approval	FY06
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Conducted 120 training courses, seminars and workshops • Strengthen lab capacity • Established RT-PCR capacity
Animal health (disease control; compensation; biosecurity)	• Carried out assessment of State Veterinary Service • Developed and introduced an interactive, computer and internet based National Animal Disease Information System • Strengthened surveillance and bio-security, including 18 mobile incinerators to dispose safely of poultry carcasses, a boat for undertaking HPAI surveys of wild birds, personal protective equipment, and biotainers and transport bags
Human health (incl. pandemic preparedness in health sector)	• Carried out training events • Established national avian influenza hotline • Rehabilitated two rayon-level virology laboratories
Public awareness and communication	• Developed national communications strategy • Prepared training materials and conducted training events • Four animated TV clips aired by five TV channels • Produced two training films for veterinary specialists and health workers
Coordination between animal and human health systems	• Developed National Action Plan
Pandemic preparedness (multisectoral plans and simulations)	• Developed National Action Plan • Carried out tabletop simulation exercise
Implementation support and M&E; coordination among partners	• Not Included

BOSNIA-HERZEGOVINA

Below is a table highlighting some accomplishments by the Avian Influenza Preparedness Project in Bosnia-Herzegovina, carried out within the GPAI.

Project Information	
Country	Bosnia-Herzegovina
Region	ECA
Project Name	Avian Influenza Preparedness
ID	P100415
Project Cost (US$ m)	6.4
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Established RT-PCR capacity and tested 1200 samples • Established virology laboratory and procured all necessary equipment
Animal health (disease control; compensation; biosecurity)	• Prepared Culled Poultry Compensation Scheme and Manual
Human health (incl. pandemic preparedness in health sector)	• Established hospital-specific preparedness plans • Established regional rapid response teams • Procured field vehicles, mobile phones, digital camera, bio-safety materials • Procured 15000 doses of seasonal trivalent vaccine, 25000 doses of Tamiflu
Public awareness and communication	• Completed communication strategy for avian influenza and other zoonoses outbreak • Carried out communications workshops • Printed and distributed 600 copies of national preparedness plan
Coordination between animal and human health systems	• Developed National Avian Influenza Preparedness Plan
Pandemic preparedness (multisectoral plans and simulations)	• Developed National Avian Influenza Preparedness Plan • FAO organized integrated simulation exercise
Implementation support and M&E; coordination among partners	• Not Included

GEORGIA

Below is a table highlighting some accomplishments by the Avian Influenza Control and Human Pandemic Preparedness and Response Project in Georgia, carried out within the GPAI.

Project Information	
Country	Georgia
Region	ECA
Project Name	Avian Influenza Control and Human Pandemic Preparedness and Response
ID	P099808
Project Cost (US$ m)	11.868
FY of First Approval	FY06
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Established and equipped regional avian influenza emergency offices • Trained Food Safety Agency staff • Designed and established five Border Inspection Posts • Developed national disease surveillance and information system
Animal health (disease control; compensation; biosecurity)	• Purchased and distributed emergency supplies, including disinfectants, protective gear, masks, and reagents • Established hotline and health information system
Human health (incl. pandemic preparedness in health sector)	• Trained over 700 health workers, including 610 public health staff 40 medical professionals • Strengthened Intensive Care Unit capacity • Procured intensive mobile units • Provided 9,000 seasonal anti-viral vaccines
Public awareness and communication	• Developed avian influenza communication strategy • KAP survey carried out • Established multilingual avian influenza website • Distributed 80,000 information packets
Coordination between animal and human health systems	• Prepared an integrated and multisectoral • contingency plan for pandemic preparedness
Pandemic preparedness (multisectoral plans and simulations)	• Developed National Avian Influenza strategy • Completed desk simulation
Implementation support and M&E; coordination among partners	• Not Included

Kosovo

Below is a table highlighting some accomplishments by the Avian Influenza Control and Human Pandemic Preparedness and Response Project in Kosovo, carried out within the GPAI.

Project Information	
Country	Kosovo
Region	ECA
Project Name	Avian Influenza Control and Human Pandemic Preparedness and Response
ID	P102165
Project Cost (US$ m)	3
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Developed RT-PCR testing capacity • Constructed and equipped animal health laboratory • Trained field epidemiologists in disease surveillance and diagnosis
Animal health (disease control; compensation; biosecurity)	• Established compensation procedures • Procured equipment, including Portable Pumps for Disinfection, Disinfectants, and Personal Protective Equipment
Human health (incl. pandemic preparedness in health sector)	• Procured 25,000 doses of anti-viral medicine • Vaccinated 100 percent of institute of public health staff, 50 percent of hospital staff • Installed country-wide disease surveillance system • Constructed intensive care unit
Public awareness and communication	• Produced awareness-raising and communication aids, including leaflets, posters, videos/DVDs, stickers, and farm gate notices • Supported broadcasts of messages on radio and TV • Carried out KAP Survey
Coordination between animal and human health systems	• Developed National Avian Influenza Plan
Pandemic preparedness (multisectoral plans and simulations)	• Developed National Avian Influenza Plan • Conducted 2 table top simulation exercises
Implementation support and M&E; coordination among partners	• Completed Avian Influenza Operational Manual • Produced work program, annual reports, financial report • Successfully carried out audit

KYRGYZ REPUBLIC

Below is a table highlighting some accomplishments by two projects in the Kyrgyz Republic, carried out within the GPAI.

Project Information		
Country	Kyrgyz Republic	Kyrgyz Republic
Region	ECA	ECA
Project Name	Avian Influenza Control and Human Pandemic Preparedness and Response	Agricultural Support Services
ID	P099453	P040721
Project Cost (US$ m)	6.125	1.0
FY of First Approval	FY06	FY07
Component	**Accomplishments**	
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Provided laboratory reagents and equipment • Trained laboratory staff • Upgraded two facilities to bio-security level 2; renovated two regional Vet Labs • Established national surveillance system for influenza • Trained 99 percent of field epidemiologists	• Rehabilitated four veterinary laboratories
Animal health (disease control; compensation; biosecurity)	• Constructed 27 holes to dispose of dead animals • Tested compensation mechanism in pilot regions • Carried out training on biosecurity and biosafety together with the communication strategy	• Procured urgently needed equipment • Constructed animal carcass disposal facilities
Human health (incl. pandemic preparedness in health sector)	• Constructed hospital isolation rooms • Improved national public health surveillance system • Renovated Central Virology Laboratory	• Not Included
Public awareness and communication	• Developed Communication Strategy • Disseminated materials on avian influenza prevention (more than 80,000 copies distributed) • Carried out 423 information broadcasts (radio and TV)	• Not Included
Coordination between animal and human health systems	• Enhanced inter-ministerial coordination • Established national multisectoral coordination body	• Not Included
Pandemic preparedness (multisectoral plans and simulations)	• Established National Epidemic Committee • Improved government capacity for containment and outbreak control • Carried out multisectoral field and table-top simulation exercises	• Not Included
Implementation support and M&E; coordination among partners	• Project activities and project management was effectively implemented by the Agricultural Projects Implementation Unit	• Not Included

MOLDOVA

Below is a table highlighting some accomplishments by the Avian Influenza Control and Human Pandemic Preparedness and Response Project in Moldova, carried out within the GPAI.

Project Information	
Country	Moldova
Region	ECA
Project Name	Avian Influenza Control and Human Pandemic Preparedness and Response
ID	P099841
Project Cost (US$ m)	11.6
FY of First Approval	FY06
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Developed and installed IT surveillance system, providing real-time information at more than 250 locations • Established six rapid response teams for outbreak investigations • Renovated laboratory infrastructure • Upgraded seven border quarantine posts
Animal health (disease control; compensation; biosecurity)	• Renovation National Viral Laboratory • Completed bio-security training program for veterinary stakeholders and commercial poultry holders • Developed surveillance (SITA) database • Developed compensation procedures • Constructed diesel-fired incinerators in line with environmental requirements
Human health (incl. pandemic preparedness in health sector)	• Established intensive care unit • Established regional and local rapid response teams • Strengthened capacity at 40 hospitals • Five specialists gained international certification • Trained two technicians in the use of RT-PCR testing equipment
Public awareness and communication	• Carried out KAP survey with 1100 individuals • Multi-pronged and effective public awareness and information program carried out (UNICEF)
Coordination between animal and human health systems	• Developed National Avian Influenza Action Plan
Pandemic preparedness (multisectoral plans and simulations)	• Developed National Avian Influenza Action Plan • Carried out real-time simulation exercises
Implementation support and M&E; coordination among partners	• Not Included

ROMANIA

Below is a table highlighting some accomplishments by the Avian Influenza Control and Human Pandemic Preparedness and Response Project in Romania, carried out within the GPAI.

Project Information	
Country	Romania
Region	ECA
Project Name	Avian Influenza Control and Human Pandemic Preparedness and Response
ID	P100470
Project Cost (US$ m)	47.7
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Upgraded facility to bio-security level 3 • Instituted quality control methods for veterinary medicinal products • Developed capacity to operate facilities for administering highly infectious pathogens on live animals • Completed assessment of veterinary services was completed and the report was made available
Animal health (disease control; compensation; biosecurity)	• Developed options for bio-security investments for poultry producers • Developed bio-security manuals
Human health (incl. pandemic preparedness in health sector)	• Prepared Public Health Program • Ministry of health finalized the national contingency plan in July 2009 • Developed vaccine production capacity • Delivered and installed equipment packages for the infectious disease hospitals
Public awareness and communication	• Distributed manuals on bio-security
Coordination between animal and human health systems	• Prepared National Strategic Program for Surveillance
Pandemic preparedness (multisectoral plans and simulations)	• Prepared National Strategic Program for Surveillance
Implementation support and M&E; coordination among partners	• Strengthened project management capacity • Conducted monitoring and evaluation surveys

TAJIKISTAN

Below is a table highlighting some accomplishments by the Avian Influenza and Human Pandemic Preparedness and Response Project in Tajikistan, carried out within the GPAI.

Project Information	
Country	Tajikistan
Region	ECA
Project Name	Avian Influenza and Human Pandemic Preparedness and Response
ID	P100451
Project Cost (US$ m)	6.8
FY of First Approval	FY06
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Upgraded animal and human health laboratories to BSL-2 • Operationalized RT-PCR function • Established surveillance hotline • Conducted field surveillance by 50 veterinarians
Animal health (disease control; compensation; biosecurity)	• Made compensation fund procedures fully operational • Collected and tested 5,558 blood serums and 1,814 pathological materials from domestic and wild birds • Constructed 4 incinerators
Human health (incl. pandemic preparedness in health sector)	• Trained 139 human health specialists • •Established 4 rapid response teams • Procured 4 vehicles, 50 personal protective equipment kits, 170 pairs of boots, 100 pairs of gloves, sprayers, test tubes (12,000 pcs), syringes (5,000 pcs), 500 kg of disinfectants, equipment for sample collection and transportation, mobile telephones • Developed IT capacity • 2500 healthcare workers immunized • Imported 670,000 doses of H1N1 pandemic vaccine
Public awareness and communication	• Carried out KAP survey • Developed Communication Strategy • Carried out 40 radio and TV broadcasts • Developed and distributed leaflets and banners
Coordination between animal and human health systems	• Developed National Avian Influenza • Preparedness and Response Plan
Pandemic preparedness (multisectoral plans and simulations)	• Developed National Avian Influenza Preparedness and Response Plan • Conducted National Integrated Desktop Simulation Exercise for AI • Developed guidelines on AI preparedness
Implementation support and M&E; coordination among partners	• Not Included

TURKEY

Below is a table highlighting some accomplishments by the Avian Influenza and Human Pandemic Preparedness and Response Project in Turkey, carried out within the GPAI.

Project Information	
Country	Turkey
Region	ECA
Project Name	Avian Influenza and Human Pandemic Preparedness and Response
ID	P096262
Project Cost (US$ m)	55.19
FY of First Approval	FY06
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Upgraded TURKVET (national information system) • Conducted in depth epidemiological surveys • Upgraded 8 labs, including 3 to bio-security level 3 • Developed RT-PCR capacity • Lab testing capacity developed to 300 tests/day
Animal health (disease control; compensation; biosecurity)	• Compensation plan updated • Compensated farmers for 100 percent of poultry culled • Conducted bio-safety and bio-security pilots • Procured 8 mobile incinerators • Response to 2007 outbreak was more effective and efficient than to the 2005-6 outbreak
Human health (incl. pandemic preparedness in health sector)	• Created a new Department of Health Care Services in Emergency and Disasters • Trained 9000 health personnel • training on specimen transportation completed • Acquired 1.5 million doses of anti-viral (Tamiflu) and 200,000 suspensions • Completed modern national vaccine and drug warehouse
Public awareness and communication	• Prepared communication materials, including posters, brochures, radio, 30-minute documentary • Health Information Communication Center of Ministry of Health active and functional • Purchased 10 minibuses and converted to fully equipped Mobile Information Kiosks
Coordination between animal and human health systems	• Established inter-ministerial Strategic Communications Working Group including different ministries and partners
Pandemic preparedness (multisectoral plans and simulations)	• Developed National Strategy and Contingency Plans for Avian Influenza • Carried out 5 field and table-top simulation exercises • Operationalized National Zoonotic Disease Committee
Implementation support and M&E; coordination among partners	• Developed monitoring and evaluation capacity to deliver reports in a timely manner

TURKMENISTAN

Below is a table highlighting some accomplishments by the Avian Influenza Control and Human Preparedness and Response Project in Turkmenistan, carried out within the GPAI.

Project Information	
Country	Turkmenistan
Region	ECA
Project Name	Avian Influenza Control and Human Preparedness and Response
ID	P105662
Project Cost (US$ m)	1.97
FY of First Approval	FY08
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Developed surveillance capacity • Trained Staff • Refurbished regional vet labs, developed central laboratory capacity
Animal health (disease control; compensation; biosecurity)	• Conducted international training for sample handling, packing and shipping procedures for highly infectious biological materials • Completed international training course for key staff on laboratory diagnostics, bio-safety and bio-security
Human health (incl. pandemic preparedness in health sector)	• Trained 80 medical staff trained for treatment and proper diagnosis, including use of RT-PCR equipment
Public awareness and communication	• Produced 60,000 copies of national case definitions, guidelines and protocols; 250 copies of the National Avian Influenza Contingency Plan and other related communication materials • •Increased awareness of AI risks and mitigation measures among public
Coordination between animal and human health systems	• Established an inter-sectoral surveillance system for both animals and humans • Increased collaboration between relevant ministries
Pandemic preparedness (multisectoral plans and simulations)	• Developed National Strategy for Avian Influenza
Implementation support and M&E; coordination among partners	• Not Included

UZBEKISTAN

Below is a table highlighting some accomplishments by the Highly Pathogenic Avian Influenza Preparedness and Response Project in Uzbekistan, carried out within the GPAI.

Project Information	
Country	Uzbekistan
Region	ECA
Project Name	Highly Pathogenic Avian Influenza Preparedness and Response
ID	P104304
Project Cost (US$ m)	3.208
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Upgraded seven regional laboratories to bio-security level 2, including RT-PCR capacity • Procured laboratory equipment • Established vet and medical rapid investigation teams • Collected 6,250 serum samples and 5,500 cloacal/ tracheal swab fluids • Trained medical staff in procedures and standards for surveillance and monitoring
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Upgraded seven regional laboratories to bio-security level 2 • Vaccinated at-risk health workers • Improved hospital procedures
Public awareness and communication	• Carried out KAP survey • Developed a Media Plan including TV and Radio • Printed communication materials, including 403,700 posters • Educated 6 million people from 9,727 schools received information about avian influenza and developed basic skills for its prevention
Coordination between animal and human health systems	• Developed National AI Action Plan
Pandemic preparedness (multisectoral plans and simulations)	• Developed National AI Action Plan
Implementation support and M&E; coordination among partners	• Not Included

Effective Transition from Emergency Response to Successful Detection and Containment in Turkey

Poultry production in Turkey contributes about 1.7 percent to National GDP, has been growing by 14.4 percent each year, has an annual turnover of $2.5-3.0 billion and employs about 500.000 people. In 2006 the 10,000-odd large commercial (sector 1) poultry holdings contained some 213 million poultry. In addition, 90 percent of the rural population keeps 23 million poultry in backyards, with flocks varying from 2 to 50 birds.

On October 1, 2005 an outbreak of avian influenza was detected in the Manyas district of Balikesir province: three turkeys died in a flock of 1,800 in an outdoor grazing facility. Most of the rest of the flock died over the next three days. The district veterinary service diagnosed AI: laboratory confirmation was received on October 13. Control measures were initiated by the provincial veterinary service on October 7: a 3-km protection zone was set up with enforcement by military police. In the next 8 days all backyard poultry (10,000 birds) within the zone were culled, compensation provided to the affected farmers by the private poultry industry, and 16,000 birds from the remaining two commercial farms were slaughtered. A 10 km radius surveillance zone was established: this contained roughly 45,000 backyard poultry, and 10 active larger poultry farms with a stock of over 130,000 animals. The movement of live poultry was banned, transport of table and hatching eggs was regulated, market trade of poultry and hunting of wild birds was banned, and a local awareness campaign was initiated.

The outbreak was quickly contained, with no signs of transmission to humans. But the economic impact was severe. Within the first week the market capitalization of the traded firms dropped by over 30 percent. Within two weeks, the consumption of poultry in Turkey (roughly 1.2 kg per capita per month) and egg demand (12 eggs per capita per month) dropped substantially and retail poultry prices fell by 30 percent. The Turkish poultry and egg sector incurred losses of roughly $900,000 daily in October-December 2005.

In January 2006, a widespread outbreak occurred, starting initially in northeastern Turkey along the border areas with Georgia, Armenia, and Iran. This area is directly on the flight path of migrating birds (the so-called Central Asia Flyway) and sits between three large lakes: Sevan in the east (Armenia), Van in the eastern Anatolia (Turkey), and Urmia in the south (Iran). The response to the initial outbreak in the provinces of Ardahan, Kars, Erzurum, Ağrı, Iğdır, and Van was rapid with culling of over 50,000 birds in a week. In the second week of January, the number of provinces reporting suspected or confirmed cases of AI in poultry rose quickly. As of mid-March, its presence was confirmed in 58 of Turkey's 81 provinces. To combat this rapid spread, the authorities culled birds in protection zones around affected villages and monitored spread in surveillance zones. A phone hotline was set up for people to report loose or sick poultry, and bazaar market trade of live poultry was prohibited throughout the country. By mid-March, over 2.3 million birds had been culled. The rapid spread of the AI in January 2006 is thought to be due to challenges with enforcing bans on the movement of birds in the surveillance zones and some well-reported instances of delayed compensation payments.

There was associated animal-to-human transmission of H5N1. Up to January 19, there were 21 suspected human cases, including four deaths. 38 percent of the cases were female, and seventeen of the 21 patients were younger than 15 years old. Most of the cases were transferred to, and treated at, the University Hospital in Van. The prompt response led to the early control of the outbreaks nationally and the early detection and the treatment helped keep the case fatality ratio low.

2007 outbreak. During an outbreak in Batman Province (February 8-15, 2007), a total of 1,508 poultry of various species were culled. The HPAI contingency plan was implemented. Central and local crisis centers were established. Quarantine measures were introduced, and both protection and surveillance zones were established. Poultry were culled and compensation was provided. Live poultry markets were closed, and strict quarantine measures and road checks implemented. Epidemiological studies suggest that wild birds were the source of infection.

International support. The government has sought assistance from the UN systems agencies (FAO, WHO, UNICEF), the OIE, and members of the EU, the US and other nations and also developed an Avian Influenza and Human Pandemic Preparedness and Response (AIHP) Project for financing by the World Bank. Good progress has been made with building links between the line agencies, NGOs and local

communities; expenditures from counterpart funds; donor parallel financed actions; providing protective gear and laboratory equipment; training of animal health and human health staff; laboratory rehabilitation and public awareness activities. In particular, the joint efforts related to communication and public awareness have contributed significantly to the early warning and containment of the Batman outbreak.

A "Biosecurity Working Group", led by the Agriculture Ministry (MARA) with the participation of FAO, donors and poultry growers associations, is examining options to improve poultry sector bio-security (particular emphasis on backyard flocks). Five types of pilot project have been initiated in selected provinces with co-financing from donors.

Evaluation of responses to the Batman HPAI outbreaks in February 2007 suggested that initial response and containment activities by local and national authorities were rapid and effective, the MARA and Ministry of Health teams coordinated well together, timely support was provided by FAO and the EU, $450,000 compensation was paid – promptly – to the owners of birds culled, and adequate information was provided to the public. Compared with the previous (2005 and 2006) outbreaks, overall poultry consumption and tourism were not affected and the economic impact was negligible.

Such effective application of control measures by national and local authorities, with prompt and effective support from other nations, regional bodies and UN agencies, minimizes the risks of dramatic HPAI spread (of the kind which occurred in January 2006) and of major economic consequences.

Sources: AIHP Technical Annex and ISRs; "Population Estimates and Geographic Distribution of Backyard Poultry and Poultry Keeping System," April 2007, Nedret Durutan and Cuneyt Okan; and "Rapid Assessment of HPAI Socio-economic Impacts in Turkey," December 2006, Ellen Geerlings, FAO/AGAL

Armenia Remained Free from HPAI Despite Regional Threat

Despite reported outbreaks of H5N1 Highly Pathogenic Avian Influenza (HPAI) in neighboring countries (Georgia, Turkey and Azerbaijan) and human deaths from avian influenza infection in two of them (Turkey and Azerbaijan), Armenia has not had any confirmed cases of HPAI. This suggests that natural mitigating features may have helped. But, more important, a quick government response and strong commitment have helped the country prepare for tackling outbreaks.

Armenia responded rapidly to the global threat of HPAI by implementing quick measures against it. The government instituted an inter-ministerial task force, which was mandated to respond to any emergency situation, to implement a communication strategy and to coordinate between various government agencies. While many activities of the task force were sporadic and ad-hoc, it was quite effective in ensuring coordination between government agencies and in quickly implementing various required measures. These measures included bans on poultry imports, surveillance at the border posts and communication with the public. In addition, the task force was effective in preparing the Government's program of measures against HPAI, which served as the basis for the overall donor support. The veterinary services were able to utilize the semi-private community veterinarians and state inspectors for the major surveillance effort. There are about 870 veterinarians based in communities and the probability of detection of an outbreak of HPAI at village level is fairly high. In addition, extension efforts appear to have created a high awareness of the dangers of H5N1 at the community/village level.

This success was in part possible thanks to Armenia's capacity to quickly secure, from various donors (World Bank, FAO, USAID, Russia, PHRD, AHIF), support for its national HPAI program. The Government designed a national program under the GPAI framework within a few months. This program was tailored to the Armenian context and addressed the immediate AI threat. Harmonization with USAID's support was quite instrumental; USAID planned its AI program while the World Bank support was being prepared. The Bank project built capacity in the veterinary services for AI preparedness. In addition, it addressed broader veterinary capacity in the country, thus becoming a major intervention to strengthen the veterinary system.

Source: World Bank

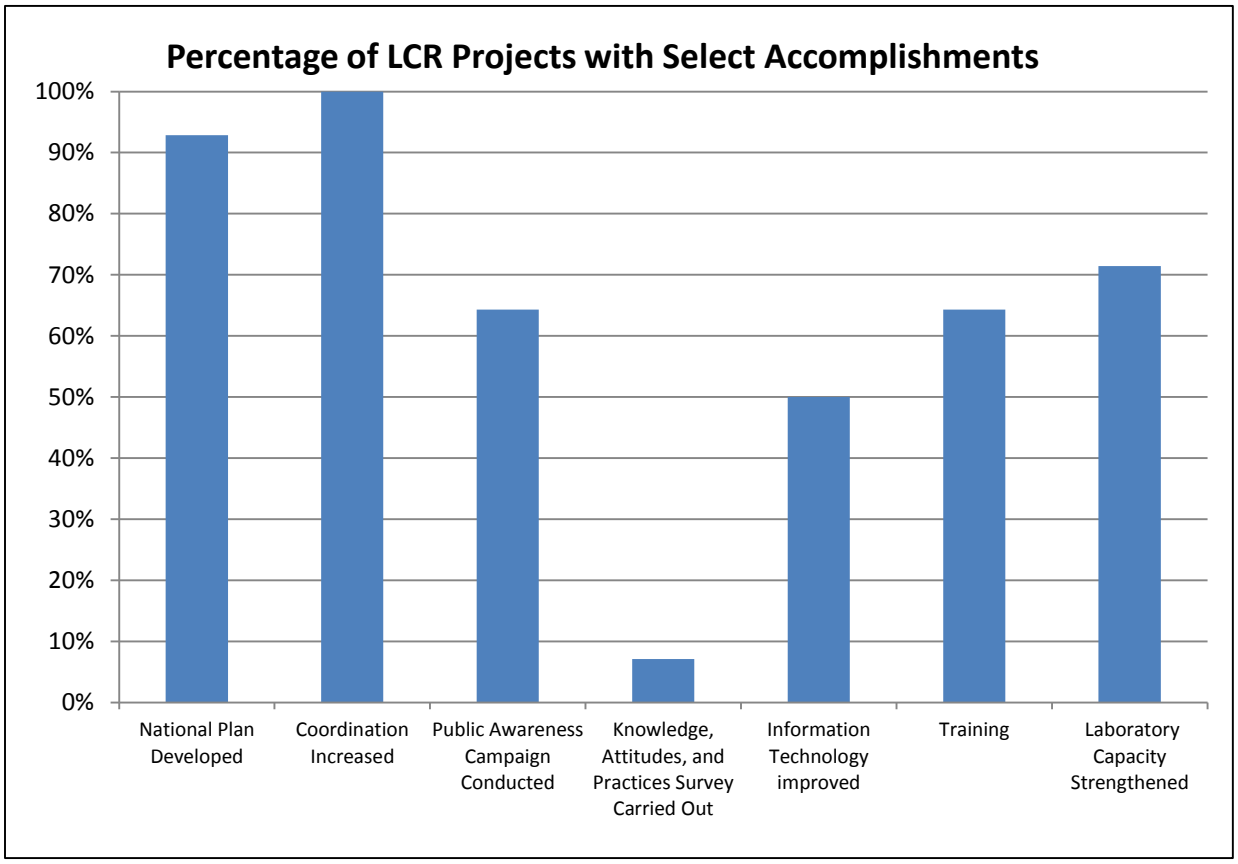
LATIN AMERICA AND THE CARIBBEAN (LCR)

The Latin America and the Caribbean Region (LCR) had 14 projects that are included in this review. They took place in Argentina (3 projects), Belize, Brazil, the Dominican Republic, Haiti, Honduras, Mexico (3 projects), Nicaragua, and Uruguay, and also included a Regional Project, which worked across countries. Of the 14 LCR projects, 13 (93 percent) developed national plans. All 14 projects increased coordination. 64 percent (nine projects) carried out a public awareness campaigns and only one project conducted a Knowledge, Attitudes, and Practices survey. The use of information technology was improved in 7 projects. Ten projects (71 percent) conducted training exercises, and five projects (36 percent) carried strengthened laboratory capacity.

LCR
Argentina
Belize
Brazil
Dominican Republic
Haiti
Honduras
Latin America Regional
Mexico
Nicaragua
Uruguay

Note that as part of the international response, other partners provided support in a range of areas. Thus, in the summary project accomplishment briefs below, an entry labelled “not included” reflects selection of support from the World Bank and/or lack of specific references in project documentation.

Project-specific outputs are outlined below.



Source: Authors’ analyses.

ARGENTINA

This table highlights some accomplishments by three projects in Argentina, carried out within the GPAI.

Project Information			
Country (Region)	Argentina (LCR)	Argentina (LCR)	Argentina (LCR)
Project Name	Additional Financing for Provincial Agricultural Development I	Essential Public Health Functions Project	Prevention and Management of Influenza Type Illness and Strengthening of the Epidemiological System
ID	P102316/ P006010	P090993	P117377
Project Cost (US$ m)	2	220	229
FY of First Approval	FY07	FY09	FY10
Component	**Accomplishments**		
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	Strengthened avian influenza surveillance capacity	•Not Included	•Developed 37 "Situation Rooms" to improve surveillance ••Used results-based financing for stronger surveillance system ••Trained 105 epidemiologists
Animal health (disease control; compensation; biosecurity)	•Supported coordination with Animal Health Secretary	•Improved coordination with Animal Health Secretary	•Carried out 53,000 Influenza diagnostic laboratory tests •Improved lab capacities in all Provinces •Trained Lab officers in selected National laboratories
Human health (incl. pandemic preparedness in health sector)	•Supported in the preparation of the National Health plan for Avian influenza	•Second phase of training of 97 epidemiologists •Certified Health intelligence units in all Provinces •Used Results-based Financing for stronger surveillance system	•Distributed 100 percent of A/H1N1 vaccines, for 94 percent coverage. •Implemented stronger immune prevention of acute respiratory infections (ARI) •Refurbished 37.3 percent of Intensive health care units beds in the country's public system
Public awareness and communication	Not Included	•Not Included	•Health sector communication strategy at sub-national level •379 nationwide Operational Modules of Social Communication (MOCS); adapted 36 MOCS for Indigenous Peoples'awareness
Coordination between animal and human health	Not Included	•Developed National Integrated Plan for Response to Pandemic	• Not Included
Pandemic preparedness (multisectoral plans and simulations)	Not Included	•Developed National Integrated Plan for Response to Pandemic	• Not Included
Implementation support and M&E; coordination among partners	Not Included	•Not Included	•16 Situation Rooms with highly satisfactory level of accreditation •Carried out technical Audit to certify project outputs

BELIZE

Below is a table highlighting some accomplishments by the Influenza Detection and Response Project in Belize, carried out within the GPAI.

Project Information	
Country	Belize
Region	LCR
Project Name	Influenza Detection and Response Project
ID	P117604
Project Cost (US$ m)	0.5
FY of First Approval	FY10
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Trained 140 health workers to work at airport, sea port and border crossings • Established 6 Surveillance stations
Animal health (disease control; compensation; biosecurity)	• Certified biosafety cabinet • Procured 60 mini-laptop computers
Human health (incl. pandemic preparedness in health sector)	• Procured medical supplies, including 100,000 surgical masks, 1,210,000 unsterile gloves, 62,000 N95 masks, and 2,000 personal protection kits • Trained 140 health workers trained to work at airport, sea port and border crossings • Established 6 Surveillance stations
Public awareness and communication	• Carried out 3 national and 1 regional educational campaigns aired • Purchased equipment for sustainability of health communications activities
Coordination between animal and human health systems	• Not Included
Pandemic preparedness (multisectoral plans and simulations)	• Not Included
Implementation support and M&E; coordination among partners	• Not Included

BRAZIL

Below is a table highlighting some accomplishments by the Disease Surveillance & Control Project in Brazil, carried out within the GPAI.

Project Information	
Country	Brazil
Region	LCR
Project Name	Disease Surveillance & Control
ID	P083013
Project Cost (US$ m)	2.1
FY of First Approval	FY09
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Established Secretariat of Health Surveillance and web-based surveillance and detection system • Established Center for Strategic Information in Health Surveillance • Trained 300 professionals trained • Established Rapid Response Units and centers for public health emergencies in 25 states • Certified 17 laboratories
Animal health (disease control; compensation; biosecurity)	• Implemented training program • Developed Public Health Laboratory Network
Human health (incl. pandemic preparedness in health sector)	• Achieved 73.9 percent vaccine coverage of population
Public awareness and communication	• Not Included
Coordination between animal and human health systems	• Established Secretariat of Health Surveillance
Pandemic preparedness (multisectoral plans and simulations)	• Established Secretariat of Health Surveillance
Implementation support and M&E; coordination among partners	• Not Included

DOMINICAN REPUBLIC

Below is a table highlighting some accomplishments by the Avian Influenza Prevention and Control Project in the Dominican Republic, carried out within the GPAI.

Project Information	
Country	Dominican Republic
Region	LCR
Project Name	Avian Influenza Prevention and Control
ID	P110655
Project Cost (US$ m)	1
FY of First Approval	FY09
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Carried out systemic monitoring of wild birds in migration routes • Completed 4 reports on migratory bird result samples
Animal health (disease control; compensation; biosecurity)	• Equipped Central Laboratory of the Country with diagnostic capabilities, including RT-PCR
Human health (incl. pandemic preparedness in health sector)	• Not Included
Public awareness and communication	• Established avian and human influenza information websites • Completed bi-national agreement with Haiti • Developed national communications campaign and strategies
Coordination between animal and human health systems	• Prepared National Avian Influenza Control and Pandemic Preparedness Plan
Pandemic preparedness (multisectoral plans and simulations)	• Established National Anti-Pandemic Commission • Produced Manual of Norms and Procedures for Surveillance and Response to avian and human influenza at the country's entry points • Carried out simulation exercise
Implementation support and M&E; coordination among partners	• Created inter-institutional technical and scientific advisory committee that meets 4 times per year

HAITI

Below is a table highlighting some accomplishments by the Avian Human Influenza Emergency Preparedness and Control Project in Haiti, carried out within the GPAI.

Project Information	
Country	Haiti
Region	LCR
Project Name	Avian Human Influenza Emergency Preparedness and Control
ID	P111667
Project Cost (US$ m)	2.13
FY of First Approval	FY09
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Trained 5,000 farmers, 6 laboratory staff, 70 veterinarians, 15 quarantine inspectors • Constructed 2 quarantine posts • Staffed 484 communal sections with surveillance capacity • Completed Taxonomic study of wild bird species in Haiti
Animal health (disease control; compensation; biosecurity)	• Tested over 7000 laboratory samples • Established 2 health federations at subnational (department) level, and 50 at communal level
Human health (incl. pandemic preparedness in health sector)	• Trained 400 health personnel • Completed guide for training public health officials on avian flu and other severe influenza diseases
Public awareness and communication	• Developed national communications strategy • Distributed 5,000 flyers and 100 posters to poultry producers • Conducted workshops and conferences to discuss the avian flu threat
Coordination between animal and human health systems	• Prepared National Avian Influenza Control and Pandemic Preparedness Plan
Pandemic preparedness (multisectoral plans and simulations)	• Prepared National Avian Influenza Control and Pandemic Preparedness Plan • Carried out simulation exercise
Implementation support and M&E; coordination among partners	• Not Included

HONDURAS

Below is a table highlighting some accomplishments by the Highly Pathogenic Avian Influenza (H5N1) Prevention and Control Project in Honduras, carried out within the GPAI.

Project Information	
Country	Honduras
Region	LCR
Project Name	Highly Pathogenic Avian Influenza (H5N1) Prevention and Control
ID	P111255
Project Cost (US$ m)	0.3
FY of First Approval	FY08
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Implemented Epidemiological Surveillance Plan • Acquired lab equipment and supplies • Trained 10 technicians, training of trainers, veterinarians, microbiologists, field technicians and laboratory assistants on matters of epidemiological • surveillance • Established Early Warning and Alert geographical information systems • Purchased two vehicles for surveillance and sampling
Animal health (disease control; compensation; biosecurity)	• Procured state-of-the-art • equipment for new laboratory, including RT-PCR, incubation equipment, and sampling materials • Developed regulations for compensation mechanism
Human health (incl. pandemic preparedness in health sector)	• Not Included
Public awareness and communication	• Developed and implemented AI communications strategy
Coordination between animal and human health systems	• Strengthened National Action Plan for the Prevention and Early Detection of Highly Pathogenic Avian Influenza
Pandemic preparedness (multisectoral plans and simulations)	• Strengthened National Action Plan for the Prevention and Early Detection of Highly Pathogenic Avian Influenza • Carried out simulation exercise
Implementation support and M&E; coordination among partners	• Not Included

LATIN AMERICA REGIONAL

Below is a table highlighting some accomplishments by the Strengthening of the Southern Agricultural Council for Avian Flu Preparedness Project in Argentina, Brazil, Paraguay and Uruguay, carried out within the GPAI.

Project Information	
Country	Argentina, Brazil, Paraguay and Uruguay
Region	LCR
Project Name	Strengthening of the Southern Agricultural for Avian Flu Preparedness
ID	P104455
Project Cost (US$ m)	0.5
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Carried out awareness events • Established a functional database
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Not Included
Public awareness and communication	• Carried out awareness events
Coordination between animal and human health systems	• Not Included
Pandemic preparedness (multisectoral plans and simulations)	• Not Included
Implementation support and M&E; coordination among partners	• Not Included

MEXICO

This table highlights some accomplishments by three projects in Mexico, carried out within the GPAI.

Project Information			
Country (Region)	Mexico (LCR)	Mexico (LCR)	Mexico (LCR)
Project Name	Basic Health Care	Influenza A/H1N1 Prevention	Influenza Prevention and Control
ID	P066321	P118072	P116965
Project Cost (US$ m)	27.37	1.7	Project was cancelled
FY of First Approval	FY09	FY10	FY10
Component	**Accomplishments**		
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Not Included	• Not Included	• Improved epidemiological system • Improved state surveillance capacity • Equipped 47 percent of epidemiological offices and connected to new information technology platform
Animal health (disease control; compensation; biosecurity)	• Not Included	• Not Included	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Pharmaceuticals and consumable medical supplies	• Trained 64 health promotion staff of the 32 Federal Entities	• Not Included
Public awareness and communication	• Not Included	• Developed comprehensive risk communication strategies • Influenza prevention campaigns in nine of ten federal entities to high risk and marginalized populations • Information technology equipment for nine of ten federal entities • Increased general knowledge about pandemic prevention • Carried out KAP survey • Reached 3.3 m vulnerable people	• Developed plan to upgrade SINAVE's technological platform
Coordination between animal and human health systems	• National Plan for Preparedness and Response to an Influenza Pandemic	• Multidisciplinary team for technical assistance to, and supervision of, State health promotion units • Established multidisciplinary teams in nine of ten Federal Entities	• National Plan for Preparedness and Response to an Influenza Pandemic
Pandemic preparedness (multisectoral plans and simulations)	• National Plan for Preparedness and Response to an Influenza Pandemic	• National Plan for Preparedness and Response to an Influenza Pandemic	• National Plan for Preparedness and Response to an Influenza Pandemic
Implementation support and M&E; coordination among partners	• Not Included	• Report synthesizing lessons learned in strengthening the capacity of State Health State Systems	• Not Included

NICARAGUA

Below is a table highlighting some accomplishments by the Health System Strengthening and Response to Epidemiological Emergencies Project in Nicaragua, carried out within the GPAI.

Project Information	
Country	Nicaragua
Region	LCR
Project Name	Health System Strengthening and Response to Epidemiological Emergencies
ID	P112906
Project Cost (US$ m)	5
FY of First Approval	FY10
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Equipped and trained 100 percent of targeted alternative health centers for conducting epidemiological surveillance • Reinforced the epidemiological surveillance system • Procured and distributed equipment • Strengthened capacity at 17 public health laboratories • Achieved minimum stock of A/H1N1 related medicines at 100 percent coverage of local healthcare • Trained 11,000 professionals in surveillance techniques
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Certified 4 laboratories, 31 hospitals • Trained 15,090 health workers in proper diagnosis and treatment • Procured 731,000 disposable masks for personal protection
Public awareness and communication	• Developed and implemented national communication plan in all departments • Distributed promotion and prevention messages through the media and visits to approximately 900,000 homes
Coordination between animal and human health systems	• Developed and implemented National Action Plan
Pandemic preparedness (multisectoral plans and simulations)	• Developed and implemented National Action Plan
Implementation support and M&E; coordination among partners	• Carried out project assessment • Hired project coordinator • Implemented Case Management Standards for A/H1N1influenza in 33 hospital units

URUGUAY

Below is a table highlighting some accomplishments by the Additional Financing Foot & Mouth Disease Emergency Recovery Loan Project in Uruguay, carried out within the GPAI.

Project Information	
Country	Uruguay
Region	LCR
Project Name	Additional Financing Foot & Mouth Disease Emergency Recovery Loan
ID	P101124/ P074543
Project Cost (US$ m)	9.55
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Achieved high level of preparedness for Animal Health Service • Trained veterinary professionals in diagnosis of AHI
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Not Included
Public awareness and communication	• Organized events to increase risk awareness among producers
Coordination between animal and human health systems	• Not Included
Pandemic preparedness (multisectoral plans and simulations)	• Not Included
Implementation support and M&E; coordination among partners	• Not Included

Impact of the 2009 H1N1 Influenza Pandemic in Mexico

Mexican public health authorities responded well and promptly to the newly-emerged H1N1 influenza virus. Although the virus proved to be less virulent than was initially feared, the economic costs of the epidemic in Mexico (which then became the 2009 H1N1 flu pandemic) were quick to materialize. The costs were substantial as well, far above the medical costs and the costs due to people being ill. A sharp drop in demand due to the evolving epidemic hit the tourism and hospitality sectors and related activities hard.

In mid-March 2009 health service providers in Mexico observed an unusual increase in patients presenting influenza-like symptoms. The increased number of local outbreaks of seasonal influenza in late February and March (seasonal flu usually peaks in mid-January) as well as clusters of severe pneumonia in young adults compounded suspicions and led health officials to investigate the outbreaks. On April 16, the Ministry of Health announced that there had been an unusual increase in seasonal flu cases.

On April 23, when laboratories confirmed that A/H1N1 was responsible for several influenza cases in Mexico, the Mexican Government began implementation of a series of activities aimed at containing the spread and mitigating the health impact of the epidemic. Schools, restaurants, museums and other venues in Mexico City were shut down for 10 days; nonessential businesses were closed for five days. The Ministries of Health and Education issued a joint statement saying that school closing was a preventive measure and that everyone should "avoid popular or crowded places except when absolutely necessary".

The influenza pandemic had a significant temporary impact on the Mexican economy and especially on service related sectors such as tourism and recreational activities. Though a counterfactual is always hard to establish, in particular at a time of a global financial crisis and economic recession, current estimates of the downturn in economic activity in Mexico estimate an additional reduction of economic activity by 0.3-0.5 percent of GDP or between US$2.7 and US$4.5 billion. This estimate is based on the deviation of the service sector activity compared to the level of activity that would have been expected given the evolution of the rest of the economy. In terms of external finances, the drop in international tourism in the 2nd and 3rd quarters of 2009 led to a decrease of gross revenue by US$1.5 billion compared to the same period of the previous year and can be largely attributed to the H1N1 influenza epidemic.

Source: World Bank

Regional Interagency Collaboration on Preparedness in Southern Cone Countries

Regional collaboration has been important in preparing Latin American countries for control and prevention of a potential epizootic of the HPAI virus subtype H5N1, in the still HPAI-free Americas. Capabilities differ between the countries due to the state of their public health facilities, veterinary services, and their experience with other bird diseases such as low pathogenic AI virus strains and Newcastle disease.

In 2006, Argentina, Bolivia, Brazil, Chile, Paraguay and Uruguay, received a regional AHI Facility grant to strengthen the *Consejo Agropecuario del Sur (CAS)* for Avian Flu Preparedness. The CAS is a regional coordination set up by MERCOSUR (*Mercado Comun del Sur ampliado*).

The engagement of the CAS and of ministers of agriculture is strategic for tackling HPAI and other animal diseases across the sub-region. The grant financed the building of regional capacity for surveillance and prevention of HPAI and other current and emerging trans-boundary animal health issues. It recognized the importance of the potential economic and social damage to a leading poultry producing and exporting sub-region. The grant's activities therefore also addressed the potential social impact of HPAI on both small poultry producers and large-scale commercial producers in all six countries.

Interagency collaboration across IICA (*Instituto Interamericano de Cooperación para la Agricultura* - the project implementer), FAO, OIE and the World Bank was important. This collaboration helped to engage regional experts, and make links between efforts to prevent avian influenza and those to tackle other poultry and animal diseases.

Source: World Bank

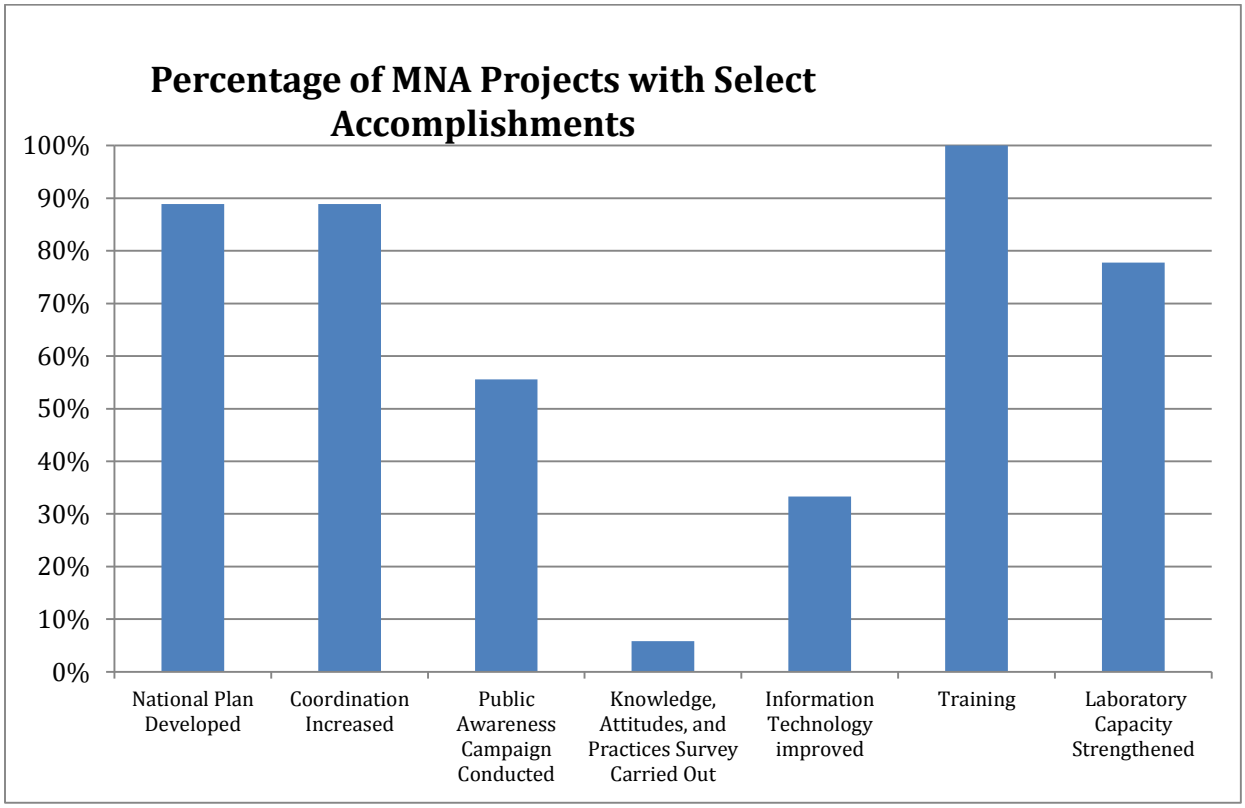
MIDDLE EAST AND NORTH AFRICA (MNA)

The Middle East and North Africa Region (MNA) had 9 projects that are included in this review. They took place in Djibouti, Egypt, Iran, Morocco, Tunisia, the West Bank and Gaza, and Yemen (2 projects). There was also a Regional Middle East Project. Of the 9 MNA projects, 8 projects (89 percent) developed national plans and 8 projects increased coordination. Five projects (56 percent) carried out a public awareness campaign and one project (Egypt) conducted a Knowledge, Attitudes, and Practices survey. Three projects (33 percent) improved the use of information technology. All 9 projects including a training component, and 7 projects (78 percent) strengthened laboratory capacity.

Countries
Djibouti
Egypt, Arab Republic of
Iran, Islam Rep.
Middle East Regional
Morocco
Tunisia
West Bank and Gaza
Yemen

Note that as part of the international response, other partners provided support in a range of areas. Thus, in the summary project accomplishment briefs below, an entry labelled "not included" reflects selection of support from the World Bank and/or lack of specific references in project documentation.

Project-specific outputs are outlined below.



Source: Authors' analyses.

DJIBOUTI

Below is a table highlighting some accomplishments by the Avian Influenza and Human Pandemic Preparedness Project in Djibouti, carried out within the GPAI.

Project Information	
Country	Djibouti
Region	MNA
Project Name	Avian Influenza and Human Pandemic Preparedness
ID	P102842
Project Cost (US$ m)	2.11
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Operationalized public health surveillance teams (including 19 active field officers and the production of monthly surveillance reports) • Upgraded national veterinary laboratory • Trained veterinary specialists
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Upgraded and equipped human epidemiology laboratory • Trained field surveillance staff
Public awareness and communication	• Developed communication action plan • Carried out communications and public awareness campaigns
Coordination between animal and human health systems	• Reviewed veterinary legislation
Pandemic preparedness (multisectoral plans and simulations)	• Developed national action plan • Updated national veterinary legal and regulatory framework
Implementation support and M&E; coordination among partners	• Not Included

EGYPT, ARAB REPUBLIC OF

Below is a table highlighting some accomplishments by the Avian Influenza Preparedness and Poultry Sector Reconstruction Project in Arab Republic of Egypt, carried out within the GPAI.

Project Information	
Country	Egypt, Arab Republic of
Region	MNA
Project Name	Avian Influenza Preparedness and Poultry Sector Reconstruction
ID	P102807/ P045175
Project Cost (US$ m)	10.341842
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Trained 500 veterinary health personnel on vaccination, culling and disinfection, sample collection and transportation, quarantine, and bio-safety and bio-security activities • Procured and distributed 38 vehicles for surveillance and rapid response, personal protective clothes, equipment, and rapid detection field tests • Procured, installed, and operationalized lab equipment • Upgraded 25 regional labs, 6 satellite labs
Animal health (disease control; compensation; biosecurity)	• Purchased and distributed 6,000 culling bags
Human health (incl. pandemic preparedness in health sector)	• Developed Integrated National Plan for Avian and Human Influenza
Public awareness and communication	• Not Included
Coordination between animal and human health systems	• Developed Environmental Management Plan
Pandemic preparedness (multisectoral plans and simulations)	• Developed Integrated National Plan for Avian and Human Influenza
Implementation support and M&E; coordination among partners	• Established project management unit • Completed Operations Manual

IRAN, ISLAMIC REPUBLIC

Below is a table highlighting some accomplishments by the Second Primary Health Care and Nutrition Project in the Islamic Republic of Iran, carried out within the GPAI.

Project Information	
Country	Iran, Islamic Rep.
Region	MNA
Project Name	Second Primary Health Care and Nutrition
ID	P069943
Project Cost (US$ m)	6.1
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Trained 7.5 percent of poultry farms in disease prevention • Trained 44,000 individuals
Animal health (disease control; compensation; biosecurity)	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Funded vaccine doses
Public awareness and communication	• Conducted 221 seminars and 612 workshops on control and prevention which reached more than 20,000 beneficiaries • Trained all public sector health workers in Avian Influenza control guidelines
Coordination between animal and human health systems	• Prepared national coordination
Pandemic preparedness (multisectoral plans and simulations)	• Prepared national plan and surveillance guidelines • Carried out simulation
Implementation support and M&E; coordination among partners	• Not Included

MIDDLE EAST REGIONAL

Below is a table highlighting some accomplishments by the Sub-regional Avian and Pandemic Influenza Preparedness Middle East Consortium on Infectious Disease Surveillance (MECIDS) Project in Egypt, Israel, Jordan, and the West Bank and Gaza, carried out within the GPAI.

Project Information	
Country	Egypt, Israel, Jordan, and the West Bank and Gaza
Region	MNA
Project Name	Sub-regional Avian and Pandemic Influenza Preparedness; Middle East Consortium on Infectious Disease Surveillance (MECIDS)
ID	P103495
Project Cost (US$ m)	0.976899
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Established RT-PCR capacity • Convened workshop for 15 doctors and laboratory technicians
Animal health (disease control; compensation; biosecurity)	• Collected and integrated data from eight community and hospital sentinel laboratories; completed cumulative reports • Middle East Consortium on Infectious Disease Surveillance launched meetings with Palestinian and Jordanian Health Ministries to improve their collaborative and coordinative approaches
Human health (incl. pandemic preparedness in health sector)	• Increased capacity to respond to an influenza pandemic and other infectious disease emergencies in humans
Public awareness and communication	• Prepared Middle East Program for Intervention Epidemiology course
Coordination between animal and human health systems	• Convened Middle East Consortium on Infectious Disease Surveillance • Increased regional coordination, including trainings, meetings, and planning activities
Pandemic preparedness (multisectoral plans and simulations)	• Supported the Middle East Consortium on Infectious Disease Surveillance • Updated implementation and training plans
Implementation support and M&E; coordination among partners	• Reviewed procurement procedures and reporting requirements. • Completed quarterly reports

MOROCCO

Below is a table highlighting some accomplishments by the Avian Influenza Preparedness Project in Morocco, carried out within the GPAI.

Project Information	
Country	Morocco
Region	MNA
Project Name	Avian Influenza Preparedness Project
ID	P111509
Project Cost (US$ m)	0.89
FY of First Approval	FY10
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Trained 500 private veterinarians • Provided reagents and diagnostic supplies to national and provincial laboratories • Established serological and molecular testing capacity at laboratories • Equipped and operationalized surveillance teams • Equipped Central Epidemiology Unit with data management equipment and software
Animal health (disease control; compensation; biosecurity)	• Formulated compensation plan
Human health (incl. pandemic preparedness in health sector)	• Increased capacity to respond to an influenza pandemic and other infectious disease emergencies in humans
Public awareness and communication	• Completed three public awareness trainings • Implemented public awareness campaign targeting 5000 people • Prepared and distributed information brochures
Coordination between animal and human health systems	• Updated National Plan for Avian Influenza Preparedness and Response
Pandemic preparedness (multisectoral plans and simulations)	• Updated National Plan for Avian Influenza Preparedness and Response
Implementation support and M&E; coordination among partners	• Recruited procurement and management specialist • Trained ministry of health staff • Finalized procurement plan

TUNISIA

Below is a table highlighting some accomplishments by the Avian Influenza Preparedness Project in Tunisia, carried out within the GPAI.

Project Information	
Country	Tunisia
Region	MNA
Project Name	Avian Influenza Preparedness
ID	P106415
Project Cost (US$ m)	0.653105
FY of First Approval	FY08
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Established epidemiological surveillance based on census of all commercial poultry farms • Established early warning system • Provided training to public and private veterinarians
Animal health (disease control; compensation; biosecurity)	• Delivered technical equipment and biosecurity products
Human health (incl. pandemic preparedness in health sector)	• Not Included
Public awareness and communication	• Prepared Public awareness and communication plan for farmers and general public
Coordination between animal and human health systems	• Created three multisectoral committees to respond to potential outbreaks
Pandemic preparedness (multisectoral plans and simulations)	• Developed emergency response plan • Completed environmental management plan
Implementation support and M&E; coordination among partners	• Not Included

WEST BANK AND GAZA

Below is a table highlighting some accomplishments by the Avian and Human Influenza Prevention and Control Project in West Bank and Gaza, carried out within the GPAI.

Project Information	
Country	West Bank and Gaza
Region	MNA
Project Name	Avian and Human Influenza Prevention and Control
ID	P100568/ P102485
Project Cost (US$ m)	13
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Procured personal protective equipment and provided training • Provided technical and case management training • Upgraded and equipped 2 veterinary labs • Installed and provided training in surveillance database software • Established veterinary lab in Gaza; upgraded West Bank veterinary lab
Animal health (disease control; compensation; biosecurity)	• Carried out culling, transportation, and disposal of carcasses and infectious materials in accordance with international standards • Initiated a comprehensive compensation system • Recruited technical adviser • Procured personal protective equipment • Procured reagents
Human health (incl. pandemic preparedness in health sector)	• Not Included
Public awareness and communication	• Not Included
Coordination between animal and human health systems	• Not Included
Pandemic preparedness (multisectoral plans and simulations)	• Not Included
Implementation support and M&E; coordination among partners	• Staffed and operationalized project management unit, including monitoring and evaluation policy, and planning specialists

YEMEN

Below is a table highlighting some accomplishments achieved by two projects in Yemen, carried out within the GPAI.

Project Information		
Country	Yemen	Yemen
Region	MNA	MNA
Project Name	Strengthening the Integrated National Program for the Prevention and Control of Avian and Human Influenza	Avian Influenza Preparedness & Control Project
ID	P105260	P111414
Project Cost (US$ m)	0.05726	1.08
FY of First Approval	FY07	FY09
Component	**Accomplishments**	
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Not Included	• Procured equipment, including surveillance cars, computers, and printers • Trained virologist staff, technicians, and nine virologists • Procured communications equipment for 9 high-risk governorates
Animal health (disease control; compensation; biosecurity)	• Not Included	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Not Included	• Not Included
Public awareness and communication	• Not Included	• Prepared and carried out public awareness campaign for both farmers and public • Completed two communications and advocacy trainings for 80 people • Hired communications specialist
Coordination between animal and human health systems	• Prepared National Avian Influenza Action Plan	• Completed project renovation and coordination plan
Pandemic preparedness (multisectoral plans and simulations)	• Prepared National Avian Influenza Action Plan • Created National Steering Committee	• Completed project renovation and coordination plan
Implementation support and M&E; coordination among partners	• Not Included	• Not Included

MIDDLE EAST AND NORTH AFRICA REGION CASE STUDIES

Below are selected case studies of GPAI interventions in the MNA Region. These case studies are intended to complement the country overviews and provide greater depth and detail regarding the operations of the GPAI.

Close Human-to-Poultry Contact Heightens Pandemic Risk in Egypt

On February 2006, Egypt confirmed its first cases of Highly Pathogenic Avian Influenza (HPAI) in domestic poultry. Since then the number of outbreaks in poultry has reached 341, affecting 860 farms and 285 backyard poultry holders. Thus far, 34.4 million birds have been culled, and outbreaks have badly damaged the local poultry industry with costs estimated at between US$2 billion to 3 billion. Egypt has also registered the highest number of human infections and fatalities on the African continent with 38 confirmed human infections of H5N1, including 15 deaths.

Combating this disease is made more difficult given Egypt's poultry systems and the social and cultural factors that have assisted the disease's rapid spread in the country. Nearly one-third of Egyptian households own poultry. These households, together with many small-scale commercial units, rely on centralized live bird markets for sales as a result of the lack of refrigeration, the limited processing capacity, and the traditional and cultural preference for purchasing live birds. These markets, along with the proximity observed between poultry and humans in traditional rearing systems, present a high risk of virus dissemination. A serious public health risk has been demonstrated if the disease "spills over" into humans in these settings.

The overall government response to the outbreaks in poultry, and in humans, has been swift despite limited resources and logistical difficulties on the ground. The Ministry of Health and Population (MOHP) rapidly took the lead in combating the spread of the disease. There now exists good laboratory capacity for influenza. The MOHP Central Public Health Laboratory (CPHL) performs accurate RT-PCR diagnosis in a timely manner. Laboratory-based surveillance for influenza has been implemented in three sentinel sites. A collaboration program is also in place to share specimens and products among the CPHL and the WHO regional reference laboratory. Though governorate laboratories do not have the capacity for HPAI diagnosis, their personnel have received training in specimen collection and use of necessary laboratory supplies.

In terms of clinical management, each governorate currently has two designated hospitals to manage suspected human HPAI cases with isolation wards of about 18 to 24 beds per governorate. On the community awareness side, a USAID-funded project provided technical assistance at MOHP's request to implement a national public health campaign. Print materials were widely distributed to different audiences and hospitals centrally and at the governorates level. Basic information has been communicated through seminars at governorate levels and specific sessions have been conducted for university students and women's groups. MOHP has also launched a national radio campaign with the support of UNICEF. In addition, social mobilization campaigns have been conducted in most affected governorates providing house-to-house educational activities in high-risk areas. Although new cases continue to be reported, awareness and social mobilization campaigns initiated by MOHP appear to be successful in encouraging more rapid reporting and diagnosis, and hence limiting fatalities and the possible spread of the disease.

Much more remains to be done and MOHP has been very proactive in expanding its diagnosis and surveillance capacity for HPAI in humans. The World Bank has approved a reallocation of funds for HPAI activities through its ongoing Health Sector Project in Egypt. More than $6 million has been disbursed so far to help strengthen HPAI surveillance, improve public sector response and support a national communication strategy. In addition, a $7.1 million grant from the multidonor Avian and Human Influenza Facility was approved to support disease surveillance, diagnostic, control and management capacity in the animal health sector.

Source: World Bank

Community-Based Education Campaigns in Egypt: Empowerment through Education

Ranked number three among countries most affected by Avian Influenza (AI) and with approximately 91 percent of the human cases occurring in households with backyard poultry breeding, Egypt is combating the AI threat through communication and education. The Egyptian Government has coordinated a national communication plan with the Ministry of Agriculture (MOA) and the Ministry of Health and Population (MOHP) along with other national and international partners to "catch and contain" in the bird population before crossing into the human population.

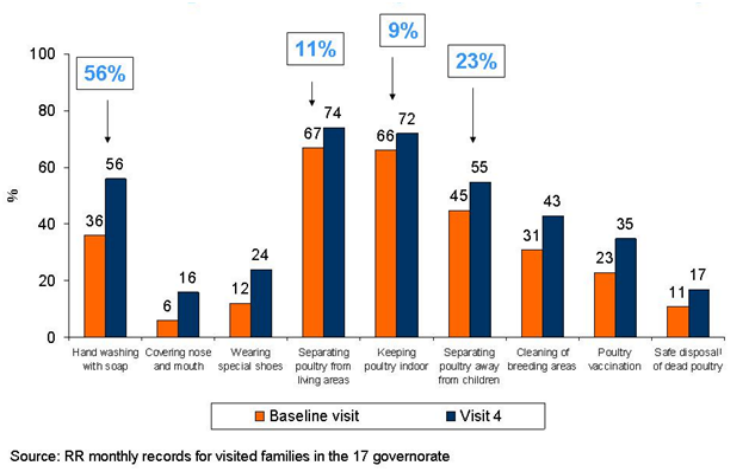
Besides a mass media public campaign, one of the main elements of the strategy is a community-based education program through community health workers: The community-based education program, implemented by the MOHP and UNICEF, reaches out to more than 4.8 million families in rural areas of the most-affected and at-risk governorates in Egypt. The 10 000 community health workers (Raedat Reefiat) and their 200 supervisors have been well trained and are supported through a tight monitoring and supervision system. The core of the program is a house-to-house education campaign facilitating the distribution of the key public health messages "Clean, Protect, Cover up your nose and mouth and report". Using a package of educational materials that is specially tailored to affect general and relevant breeding practices, members of the families responsible for the poultry breeding learn about means to best protect themselves, and stop infection among birds or humans.

Before house visits started in January 2008, a baseline survey was done. By end-June 2008, each targeted family had been visited at least 3 times. There were marked improvements, toward the target goals of:

- Outreach education on correct preventive knowledge to at least 80 percent of the households visited;
- At least 70 percent of families understand and practice 3 public health practices: i. wash hands after handling poultry; ii. separate poultry from living areas; and iii. keep children away from poultry
- Establish an MOHP institutionalized supervision system supporting AI containment program.

As the figure shows, there have been significant changes in the different behavioral practices: for example, washing hands with soap after handling poultry increased from 56 percent compared to 36 percent at baseline. Those separating poultry from living areas increased from 64 percent at baseline to 74 percent at the fourth visit. Nationally, the percent of positive change for all the 14 measured practices was 36 percent after the fourth visit, showing good impact within only 6 months.

Observed and Reported Changes in Practices (Across 17 Governorates)



Source: UNICEF-- Adapted from the World Bank staff sources

Multisectoral Pandemic Preparedness in Egypt

Egypt has made significant progress in preparing for a Pandemic. Within the Egyptian framework for Disaster Management, it has set up a strong command and control structure which is divided into three levels: the political level, the planning and preparation level, and the executive or operational level.

On the strategic level, the Higher Ministerial Committee for crisis management was established and headed by the Prime Minister with the participation of the Ministries of Defense and Military Production, Interior Affairs, Information, Foreign Affairs and Health and Population. Other concerned ministries can be invited to participate as need be.

On the planning and preparation level, the national pandemic inter-ministerial committee was established and headed by the Minister of Health and Population with the participation of concerned ministers especially those that provide essential services to the public.

Egypt has also developed response and preparedness procedures at both the national and sub-national levels. Recent achievements include establishing a sub-committee to organize pandemic simulation exercises. The sub-committee is headed by the Cabinet of Information and Decision Support Center (IDSC) with the participation of the Ministries of Defense and Military production, Interior Affairs, Health and Population, Information, Agriculture and Land Reclamation, Environment, Local Development and representatives of the National Security Council.

At the national level, a simulation exercise was conducted at the Ministry of Health and Population. The exercise was successful in testing the reporting and tracking procedures in case of a pandemic. Training was held in three governorates (El-Beheria, Red Sea and Menia).

At the sub-national level, the Monofia Pandemic Plan was reviewed, developed and evaluated for use as a model for other governorates. The IDSC ensured that all 26 governorates have Response and Preparedness Plans. The next step is to organize simulation training exercises in all governorates in order to test, revise and validate the plans.

On a parallel front, the IDSC was instrumental in providing guidance to the private sector for preparing Business Continuity Plans through advocacy. It will also undertake a survey, the first of its kind in the region, to obtain an indication of the extent to which private and public institutions responsible for providing essential services in Egypt are preparing for a possible pandemic and formulate recommendations on how to improve pandemic readiness in businesses.

Source: Pandemic Influenza Contingency (PIC) Team, OCHA

H5N1 Avian Flu Joint United Nations Assessment Mission in Egypt

At the request of the Egyptian National Supreme Committee of Avian and Human Influenza, the UN Resident Coordinator Office in Cairo and UNSIC facilitated a joint assessment mission by a multidisciplinary team from FAO, UNICEF, and WHO from 6-16 December 2009. The team was asked to assess the measures taken by all levels of government to prevent and control outbreaks of H5N1 flu in poultry and in people, and to identify impediments to effective implementation.

The mission reviewed mechanisms for the control of H5N1 flu in poultry and infection in humans. Weakness were identified through discussions with key program managers and other stakeholders. The team explored new mechanisms for controlling H5N1 flu. The mission team made clear operational recommendations that targeted mechanisms for multidisciplinary approaches, identifying opportunities for integration across disciplines and inclusion of affected communities in decision-making.

The immediate result of the mission was a comprehensive report on AHI control efforts in Egypt. The report stressed the impact of the changing epidemiology, as H5N1 flu evolved from distinct outbreaks to a widespread, enzootic disease. Specific recommendations addressed strengthening the National Supreme Committee of Avian and Human Influenza, and reinvigorating the national committees for animal health and communication. FAO organized a workshop in February 2010 to revise the national strategy for controlling HPAI. Using the recommendations of the joint-UN mission, the ministries of health, agriculture and environment and their partner NGOs will work together to build sustainable, interdisciplinary approaches to controlling endemic H5N1 influenza in Egypt.

Source: FAO

Donor Coordination Contributes to Effective Response in West Bank and Gaza

Many families in West Bank and Gaza, especially the poor, depend on poultry as their most important source of protein. In fact, almost 88 percent of total animal protein intake in Gaza is derived from poultry. Any new major avian influenza outbreak in the near future, particularly in Gaza, could thus disproportionately impact the poorest families.

The capacity of the Palestinian Authority to address the HPAI threat and to implement necessary preventative measures has to date been limited. This has been further exacerbated by cuts in aid flows from the international community in response to the recent transitions in the government. Despite the difficult situation, regional and international organizations have been able to harmonize their work, and have efficiently coordinated with the ministries of Health and Agriculture to minimize the impact of the HPAI outbreaks and in preparing for possible future outbreaks of HPAI and a pandemic.

Through recent cooperation between WHO, UNICEF, WFP, FAO, UNDP and the World Bank, a UN Interagency Framework for Avian Influenza and Pandemic Response in West Bank and Gaza was developed, based on a multisectoral approach addressing food security, public health and veterinary control issues, risk management, as well as restructuring plans for the poultry sector. In parallel, the Islamic Development Bank sponsored the purchase of equipment for local veterinary laboratories. The Russian Government also responded by compensating farmers affected by past outbreaks of HPAI. Moreover, FAO and WHO have contributed from their own funds to assist the Palestinian Authority in carrying out necessary capacity building and training activities.

Within this framework, the World Bank undertook a Rapid Assessment of the HPAI situation in the Palestinian territories, along with extensive consultations with its UN partners. Subsequently a grant was mobilized to minimize the risk of the spread of HPAI to humans and domestic poultry through improved preparedness, control and response, and to mitigate the income loss of farmers through compensation. Funding provided through the multidonor Avian and Human Influenza Facility has played a catalytic role in maintaining good coordination within the donor community and providing an effective response to HPAI preparedness and control in West Bank and Gaza.

Source: World Bank

Preparing for Detection and Prevention of Human H5N1 Avian Flu Infections in Iran

OIE has confirmed H5N1 in wild fowl, but to date no outbreaks in domestic poultry or notified human cases of Avian Influenza have been reported in Iran. The government of Iran (GOI) has taken necessary regulatory and institutional steps to form a national inter-ministerial HPAI Steering Committee headed by the Iranian Veterinary Organization and a national HPAI contingency plan has been established and simulated under field conditions.

Iran has a fairly developed and extensive Seasonal Human Influenza Surveillance system under the oversight and coordination of the Centers for Disease Control. There is no active influenza-like-illness (ILI) surveillance, and further investments are needed to train health workers in health posts, centers and private doctors, as well as CDC staff who work at sub-national level, to increase their capabilities to detect a possible index case and investigate a possible outbreak.

A well-equipped BSL-II level National Influenza Center (NIC) reference laboratory is based in Tehran. This laboratory routinely analyzes samples and has proven to be reliable in its diagnostic capacity but can currently only handle up to 100 samples per week in order to respond within 48 hours, and may not be able to cope in case of an outbreak. The Iranian Ministry of Health has decided to implement a capacity enhancement of the sentinel laboratories in the provinces and to upgrade the reference laboratory to bio-safety level III in the event of an outbreak for virus isolation and culture.

As for case management, Iran has about 1,320 hospital beds for the treatment and case management of infectious diseases. While these hospitals often have an intensive care unit, these are not accessible to patients suffering from highly contagious infectious diseases, because none have isolation rooms with negative pressure to contain contagion and contamination. Efforts are underway to map out all provincial and central infectious diseases units, which are designated for patient referral and case management to assess their needs in terms of medical equipment, consumables and training for patient isolation. A few key units will be selected for infrastructure and equipment upgrade in case of a pandemic. On the other hand, the country appears to have the necessary supplies of anti-virals for prophylactic use in healthcare workers, suspected ILI cases and the high-risk population groups.

In response to the threat to humans posed by the H5N1 virus, the World Bank's Second Primary Health Care & Nutrition Project was amended in December 2006 for financial assistance to the Iranian Ministry of Health to upgrade its medical and laboratory facilities, train health care workers in surveillance and case detection, and provide seed funding for related medical consumables and pharmaceuticals with a view to strengthening its preparedness for a potential outbreak of H5N1 in humans or a possible pandemic.

Source: World Bank

Avian Influenza Prevention and Control in West Bank and Gaza

Proximity to outbreaks in neighboring countries, coupled with a large volume of bird migrations, places West Bank and Gaza at a high risk. The first outbreak occurred in March 2006, affecting chickens and ducks, and with the recent H5N1 outbreak in Israel, the probability of repeated occurrence of the virus continues to be great. The Avian and Human Influenza Facility (AHIF), which receives contributions from ten donors led by the European Commission, is providing assistance.

In September 2006 a US$ 3 million AHIF grant was approved, with the goal to minimize threats posed to humans by avian influenza in domestic poultry, consistent with the priorities set out in the Palestinian Authority's 2005 National Plan for the Pandemic Influenza. This activity is being implemented by UNDP, and its key objective is to achieve a minimum level of spread of HPAI to humans through better preparedness, control, and response. The Grant was originally linked with a US$ 10 million World Bank-financed project. However, this initiative had to be closed on March 31, 2009 due to long delays in start-up and implementation difficulties.

After initial implementation and coordination delays that stemmed in large part from political instability, ongoing security challenges and low technical capacity, the Grant Agreement was amended in November 2009 to include new activities, as well as to reflect changes in project activities which took place due to evolving needs. These included: (a) the upgrading of a second veterinary laboratory in the West Bank to

replace the work which could not be carried out in Gaza, (b) small upgrading works for specific regional veterinary laboratories and the equipping of other regional labs in the West Bank; (c) the inclusion of a Knowledge, Attitudes and Practices survey; and (d) a new category for training and workshops for information dissemination purposes to capture lessons.

Due to the changed approach, the grant has now laid the groundwork for an effective national approach for dealing with the threat of HPAI in poultry and humans. Most of the planned grant activities have now been completed, with US$2.6 million disbursed, and the project will likely reach its objectives. UNDP as the implementing agency remains committed to achieving the grant's objective by working closely with and on behalf of the Ministry of Agriculture and Ministry of Health and collaborates with other UN agencies (WHO and FAO) as needed. The closing date of the grant has been extended to September 30, 2010 to allow for the planning and assessment of newly emerging needs, including in response to the changing context of infectious diseases globally.

Source: World Bank

A National Multisectoral Task Force Fostered Commitment to Action in Yemen

Problem and Context. With 42 percent of the people living in poverty, Yemen is among the poorest countries in the world. Poultry meat currently represents 65 percent of total meat consumption, with 33 percent produced from backyard chickens. A disruption of the poultry industry may threaten the livelihood of hundreds of thousands of already impoverished livestock farmers in Yemen.

While there have not been any confirmed cases of HPAI in Yemen to date, the risk of H5N1 outbreaks remains high. There are major threats of infection from both legal and illegal overland entry, from the import of day-old chicks, rearing of hobby birds, and generally weak poultry farm biosecurity. Such threats are all the more serious after Saudi Arabia and other countries in the region discovered HPAI outbreaks in their territory. In addition, Yemen is located directly under two migratory bird flyways.

Approach and Activities. A multisectoral task force - the National High Committee for Avian Influenza - chaired by the Minister of Health was established in 2005, and preparedness planning addressing the most pressing needs was initiated. However, rapid avian influenza preparedness assessment for human and animal health, conducted with the assistance of the World Bank, the World Health Organization (WHO), the Food and Agriculture Organization (FAO) and the International Animal Health Organization (OIE), in collaboration with the Government of Yemen, indicated that the country's AI preparedness and response was being hampered by inadequate funding, and limited logistical and human resource capacities. The assessment recommended the formulation of a multisectoral action plan with clear objectives, activities, outputs, costing, and deliverables to respond to potential avian influenza outbreaks.

Consequently, the AHI Facility awarded the Government of Yemen a Grant for US $57,260 to finance technical assistance. The aim was to ensure that a new Integrated National Action Plan for the Prevention and Control of Avian and Human Influenza under preparation will meet internationally accepted norms and capture the worldwide experience with AI to date. The chief approach adopted for the Plan's preparation was an emphasis on the multisectoral nature of the issue, namely on the need for cooperation between the health, agricultural, education, finance, planning and law enforcement sectors, while also involving the private sector and underscoring the importance of communications and a public awareness campaign.

Results. The completion of the Integrated National Action Plan for the Prevention and Control of Avian and Human Influenza was followed by a dissemination workshop in March 2008, which was jointly organized by the Ministry of Health and Population and Ministry of Agriculture and Irrigation, and supported from the AHI Facility Grant. The purpose of the workshop was to facilitate a more active engagement of all relevant ministries, and secure a commitment to support and implement the Plan from responsible authorities. Additionally, the workshop aimed to identify key development partners and donors that could contribute – either financially or through technical assistance – to the implementation of the Plan.

Source: World Bank

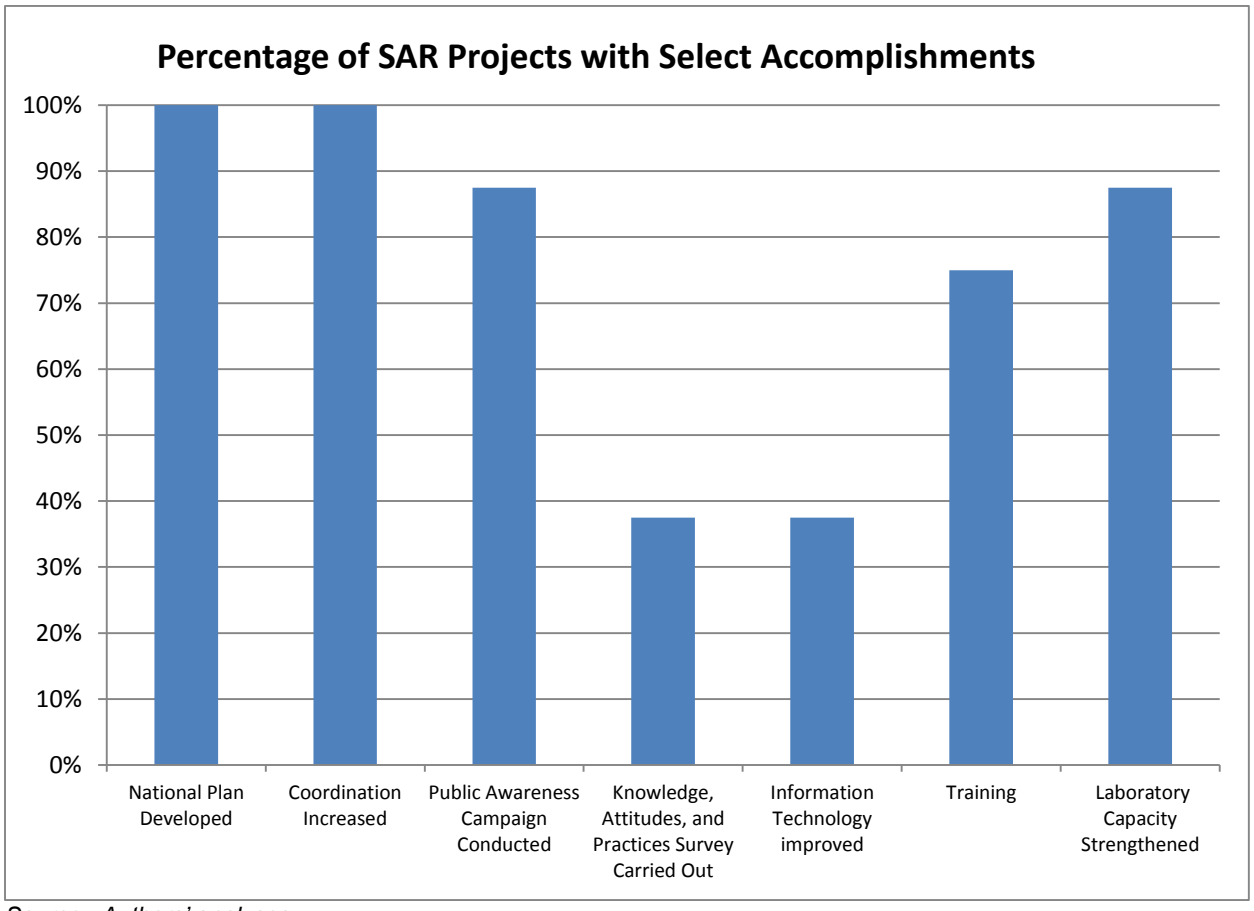
SOUTH ASIA (SAR)

The South Asia Region (SAR) had 8 projects that are included in this review. They took place in Afghanistan, Bangladesh (2 projects), Bhutan, India, Nepal, and Sri Lanka (2 projects). Of the 8 SAR projects, 100 percent developed national plans and increased coordination. Seven projects (88 percent) carried out a public awareness campaign and three projects (38 percent) conducted a Knowledge, Attitudes, and Practices survey. Three projects (38 percent) improved the use of information technology, six projects (75 percent) carried out training, and seven projects (88 percent) strengthened laboratory capacity.

Countries
Afghanistan
Bangladesh
Bhutan
India
Nepal
Sri Lanka

Note that as part of the international response, other partners provided support in a range of areas. Thus, in the summary project accomplishment briefs below, an entry labelled “not included” reflects selection of support from the World Bank and/or lack of specific references in project documentation.

Project-specific outputs are outlined below.



Source: Authors’ analyses.

AFGHANISTAN

Below is a table highlighting some accomplishments by the Avian Influenza Control and Human Pandemic Preparedness and Response Project in Afghanistan, carried out within the GPAI.

Project Information	
Country	Afghanistan
Region	SAR
Project Name	Avian Influenza Control and Human Pandemic Preparedness and Response
ID	P100935
Project Cost (US$ m)	13
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Revised veterinary and poultry section of legislation and regulations • Drafted outbreak management manuals and plan • Trained 40 veterinarians • Established and trained 8 emergency response teams • Established sentinel surveillance system • Established national diagnostic laboratory
Animal health (disease control; compensation; biosecurity)	• Established compensation procedures
Human health (incl. pandemic preparedness in health sector)	• Trained 4000 health workers • Procured rapid diagnostic kits • Procured 3000 seasonal influenza vaccines
Public awareness and communication	• Developed national communication strategy was established. • Carried out KAP survey • Aired awareness program on 4 TV stations • Trained 30 female communications officers
Coordination between animal and human health systems	• Established interministerial communication group
Pandemic preparedness (multisectoral plans and simulations)	• Prepared National Avian Influenza Contingency Plan • Revised legislation • Established 4 provincial Avian Influenza committees
Implementation support and M&E; coordination among partners	• Not Included

BANGLADESH

This table highlighs some accomplishments by two projects in Bangladesh, carried out within the GPAI.

Project Information		
Country (Region)	Bangladesh (SAR)	Bangladesh (SAR)
Project Name	Avian Influenza Preparedness and Response	Health Nutrition and Population Sector Program
ID	P102305	P074841
Project Cost (US$ m)	18	5.04
FY of First Approval	FY07	FY08
Component	**Accomplishments**	
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Renovated Livestock Research Institute and 7 field disease investigation laboratories • Implemented SMS surveillance gateway and bird market surveillance, achieving surveillance coverage across 100 percent of districts • Trained over 41,000 persons, including farmers, NGO workers, and government • Trained 2,710 field and laboratory staff in AI diagnosis and personal safety	• Increased percentage of districts completing disease surveillance reports to 95 percent
Animal health (disease control; compensation; biosecurity)	• Updated compensation plan • Paid US$3.88m in compensation to 822 claimants within 4 weeks of claims • Established and enforced movement controls • Piloted 8 Biosecure Poultry Market Chains • Trained 11,688 livestock services staff, media personnel and educational institutional staff	• Not Included
Human health (incl. pandemic preparedness in health sector)	• Increased capacity to respond to an influenza pandemic and other infectious disease emergencies in humans	• Not Included
Public awareness and communication	• Risk communication and information campaigns • Increased public awareness of avian influenza • Distributed 10 billboards, 100 banners, 10,000 leaflets, 300,000 booklets, 2,000 flipcharts, and 3 videos	• Conducted risk behavior survey
Coordination between animal and human health systems	• Updated and operationalized National Avian Influenza Action Plan	• Developed and updated National Strategy
Pandemic preparedness (multisectoral plans and simulations)	• Updated and operationalized National Avian Influenza Action Plan • Completed operational manual and distributed to all 7 national laboratories	• Developed and updated National Strategy
Implementation support and M&E; coordination among partners	• Completed program reports, financial monitoring, procurement and disbursement reports, audits, management and financial reports	• Not Included

BHUTAN

Below is a table highlighting some accomplishments by the Avian Influenza Control Project in Bhutan, carried out within the GPAI.

Project Information	
Country	Bhutan
Region	SAR
Project Name	Avian Influenza Control
ID	P106560
Project Cost (US$ m)	2.5
FY of First Approval	FY08
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Established national response team • Trained 80 percent of the targeted health care workers • Distributed necessary equipment • Established surveillance capacity in 203 administrative units • RT-PCR capacity established • Established domestic diagnostic capacity
Animal health (disease control; compensation; biosecurity)	• Compensated 6,000 farmers
Human health (incl. pandemic preparedness in health sector)	• Established human influenza-like illness surveillance • Published testing results in national bulletin • Carried out training of trainers • Procured and distributed two shipments of personal protective equipment
Public awareness and communication	• Carried out two media campaigns on influenza prevention • Distributed communications materials including posters and brochures • Carried out KAP survey
Coordination between animal and human health systems	• Updated National Influenza Pandemic Preparedness Plan
Pandemic preparedness (multisectoral plans and simulations)	• Updated National Influenza Pandemic Preparedness Plan • Established effective legal and regulatory framework for highly-pathogenic avian influenza • Carried out desktop simulation exercise
Implementation support and M&E; coordination among partners	• Not Included

INDIA

Below is a table highlighting some accomplishments by the Integrated Disease Surveillance - Support for Avian Influenza Prevention and Control Project in India, carried out within the GPAI.

Project Information	
Country	India
Region	SAR
Project Name	Integrated Disease Surveillance - Support for Avian Influenza Prevention and Control
ID	P073651 (P100790)
Project Cost (US$ m)	32.63
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Established internet-based information technology network • Established referral lab network, including 63 private hospitals and 17 district-level labs • Trained 191,433 health staff on disease surveillance and response • Distributed field test kits
Animal health (disease control; compensation; biosecurity)	• Established bio-security level 3 laboratory and three additional laboratories for animal influenza • Analyzed over 50,000 samples
Human health (incl. pandemic preparedness in health sector)	• Established 12 diagnostic laboratories for human influenza • Established routine surveillance monitoring for human influenza in 36 percent of hospital sites nationwide • Strengthened capacity at 63 private hospitals
Public awareness and communication	• Established national hotline
Coordination between animal and human health systems	• Strengthened national preparedness and coordination
Pandemic preparedness (multisectoral plans and simulations)	• Strengthened national preparedness and coordination
Implementation support and M&E; coordination among partners	• Completed six monthly progress reports

NEPAL

Below is a table highlighting some accomplishments by the Avian Influenza Control Project in Nepal, carried out within the GPAI.

Project Information	
Country	Nepal
Region	SAR
Project Name	Avian Influenza Control
ID	P100342
Project Cost (US$ m)	18.2
FY of First Approval	FY07
Component	**Accomplishments**
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Collected 50,000 samples collected • Trained 18,805 persons in high-risk districts, including 5,000 veterinary professionals, para-vets, and poultry owners • Trained 332 surveyors in intensive surveillance • Established 6 Emergency Surveillance and Disease Diagnosis Teams • Trained 225 Rapid Response Teams
Animal health (disease control; compensation; biosecurity)	• Strengthened 9 quarantine offices • Upgraded 8 laboratories to bio-security level 2
Human health (incl. pandemic preparedness in health sector)	• Distributed 4,750 personal protective equipment kits • Procured 6,300 courses of antivirals • Trained 377 health care workers on case management and infection control • Completed 18 isolation wards
Public awareness and communication	• Carried out comprehensive national communications campaign, including radio and newspaper messages, 400,000 posters and brochures and 1,600 • communication tool kits • Trained 180,000 students, 3,000 teachers, and 3,000 peer educators at 3,000 schools in 8 high-risk districts • Trained 750 media spokespersons, 1,425 security personnel, 278 traders and farmers • Conducted KAP Survey
Coordination between animal and human health systems	• Carried out national communications campaign
Pandemic preparedness (multisectoral plans and simulations)	• Carried out 8 simulation exercises
Implementation support and M&E; coordination among partners	• Developed operational guidelines

SRI LANKA

This table highlights some accomplishments by two projects in Sri Lanka, carried out within the GPAI.

Project Information		
Country	Sri Lanka	Sri Lanka
Region	SAR	SAR
Project Name	Health Sector Development Project	Avian Influenza Preparedness and Response
ID	P050740	P107100
Project Cost (US$ m)	2	1.433
FY of First Approval	FY08	FY09
Component	**Accomplishments**	
Animal health (prevention, preparedness, surveillance, diagnostic capacity)	• Established 20 sentinel surveillance sites • Increased diagnostic capacity, including RT-PCR and laboratory reinforcement • Carried out capacity development programs for sentinel site personnel	• Established provincial-level response teams • Strengthened department of public health surveillance and diagnostic capacity • Established animal health information system • Trained more than 60,000 veterinarians, medical doctors, poultry farmers, school teachers, students, and communities on prevention and personal protection • Trained 55 technical staff on avian influenza disaster management
Animal health (disease control; compensation; biosecurity)	• Not Included	• Updated compensation fund guidelines and initiated farm registry (registered 45 percent of farms) • Upgraded 2 labs to bio-security level 3 • Upgraded 17 veterinary investigation centers • Built seven biological pits for carcass disposal
Human health (incl. pandemic preparedness in health sector)	• Constructed 14 isolation units • Refurbished 20 isolation units	• Constructed 21 isolation facilities • Provided equipment to intensive care units • Distributed Personal Protection Equipment • Carried out 2000 domestic avian influenza tests
Public awareness and communication	• Developed communications program	• Trained over 58,000 farmers, administrators, veterinarians, schoolteachers and schoolchildren • Made communication materials available
Coordination between animal and human health systems	• Developed comprehensive national plan	• Coordinated between animal and health ministries • Trained public health officers and midwives to recognize the AI infection signs in humans and to collaborate with their animal health counterparts
Pandemic preparedness (multisectoral plans and simulations)	• Developed comprehensive national plan	• Completed National Action Plan • Established National-Level Steering Committee • Carried out 11 desktop simulations
Implementation support and M&E; coordination among partners	• Not Included	• Carried out performance of veterinary services (PVS) evaluation

SOUTH ASIA REGION CASE STUDIES

Below are selected case studies of GPAI interventions in the South Asia Region. These case studies are intended to complement the country overviews and provide greater depth and detail regarding the operations of the GPAI.

Communication Strategies in Afghanistan, Bhutan and Nepal

In collaboration with UNICEF, the awareness-raising campaign for avian influenza was launched across the South Asia Region through various media and targeted training.

In Bhutan, the result of the Knowledge, Attitudes and Practice (KAP) survey in September 2009 indicated that the level of awareness about avian flu was overall high across various groups. Notably, 83 percent of poultry farmers, one of the high-risk groups, were aware of the avian flu. Despite the absence of outbreaks up to that time, Bhutan has been at high risk of the avian flu as it shares borders with Bangladesh and India. Most recent outbreak in India occurred in early-2009 in West Bengal, which shares borders with Bangladesh, Nepal and Bhutan.

It is extremely important for preventing and controlling outbreaks that high-risk groups such as poultry traders and farmers are well aware of avian flu. In Nepal, the awareness campaign through TV and radio targeted high-risk districts at border areas. The two outbreaks were successfully contained, thanks to the intensive campaign in high-risk areas. There is a need for a regional, cross-border approach to communication. The World Bank therefore considered providing support for a trans-border workshop for quarantine/security officers in Nepal, India and Bangladesh as well as trans-border simulation exercises.

Afghanistan experienced more than 20 outbreaks in early 2007. A comprehensive communication strategy was prepared with UNICEF's assistance. As the majority of poultry are kept in backyards and managed by women, outreach to rural women is key. In the country where literacy rate for rural women is 11.2 percent, the project authorities have ensured women-to-women awareness raising. This was done by training women trainers and delivering important messages through women's Community Development Councils (CDCs) under the auspices of the Community Driven Development (CDD) project and the National Solidarity Project (NSP).

Source: World Bank

Strategic Planning to Tackle the Deeply Entrenched H5N1 Avian Flu Virus in Indonesia

Avian influenza in birds was first reported in Indonesia in 2003. By 2007, 31 out of 33 provinces in the country confirmed cases of HPAI. The incidence varies within the country; however, HPAI is entrenched in Java, Bali, Sumatra and South Sulawesi. Human cases continue to be reported since June 2005 with 93 fatalities from 115 confirmed cases as of December 18, 2007. Surveillance data and information on the incidence of HPAI outbreaks are generally insufficient. Participatory Disease Surveillance (PDS) is operating in 157/444 districts and 9 provinces. PDS teams have found that HPAI is entrenched in most areas where they operate. However, it is recognized that HPAI is more sporadic in smaller, more dispersed poultry populations.

The Government of Indonesia's National Strategic Work Plan for the Progressive Control of HPAI in Animals 2006 – 2008 has been developed with international organization technical assistance and contains 9 key elements:

- Program management coordinated through central and regional management units and 35 local disease-control centers;
- Enhancement of HPAI control in animals through stamping-out and emergency vaccination, bio-security, quarantine, movement control and tracing;
- Surveillance and epidemiology including early detection, an effective national system for management of surveillance information, vaccination program monitoring; surveillance following recognition of a human case and surveillance of potential virus reservoirs;

- Improved laboratory services especially diagnostic services, vaccine production and quality assurance;
- Strengthening the legislative base for all industry sectors to report disease in a timely manner and strengthen the involvement of district and provincial veterinary services in HPAI control;
- Effective communications processes to ensure that all stakeholders are informed of their role and committed to the campaign;
- Research and development designed to provide information needed to more effectively implement the control program; and
- Restructuring of the poultry production processes and marketing systems to help reduce interspecies exposure. This will also include identifying the most effective points for intervention in a complex market chain whilst recognizing the potential to create negative impacts for vulnerable people.

Whilst there has been substantial progress made in establishing a supportive basis for HPAI surveillance and control, it is evident that in order to achieve significant progress on the entrenched status of HPAI in Indonesia, a broader strategy, supported by relevant investments, needs to be designed and implemented. A concept paper has been developed to work in relation to the National Strategic Plan which sets out elements of a phased, progressive control program designed to lead to the eventual elimination of HPAI from the Indonesian archipelago, and a consultation process has been initiated with all strategic and technical partners to advance this.

Source: Adapted from FAO Progress Report 2007

ASEAN's Support to Regional Cooperation in for Pandemic Preparedness and Prevention

The members of the Association of Southeast Asian Nations, or ASEAN -- Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam – have been affected by the threats of avian and human influenzas, with several countries experiencing severe challenges from HPAI either directly or through exposure to risks from other countries in ASEAN and in the region. A regional approach to these threats was warranted.

In recognition of the human, economic, social, and security threats posed by communicable diseases, ASEAN Member States have worked over the past several years to implement integrated approaches in strengthening surveillance and response to emerging infectious diseases with a focus on multisectoral collaboration, information sharing and multicountry approaches.

ASEAN supports regional cooperation on pandemic preparedness between member states in a number of ways. A Technical Working Group on Pandemic Preparedness and Response was set up as a coordinating body to drive multisectoral cooperation in the region. This work is linked to a regional Agreement on Disaster Management and Emergency Response (2009).

Issues in the animal-human-environment interface are targeted specifically by the ASEAN Secretariat Working Group on One Health, which coordinates various health-related initiatives of the ASEAN Secretariat. For example, a project was developed to stockpile antivirals and personal protective equipment, in the event of a pandemic.

Information sharing within the region is facilitated via the Emerging Infectious Disease (EID) Plus Three Countries Program, supported by AusAID, which aims to enhance regional preparedness and capacity through integrated approaches to prevention, surveillance and response to EIDs. A website (www.aseanplus3-eid.info) provides a portal for news surveillance and platform for information exchange across relevant sectors.

Other mechanisms for regional cooperation include multisectoral cross-border outbreak investigation, exercise management training programs and coordination across laboratory networks through the ASEAN Plus Three Partnership Laboratories.

Source: ASEAN Secretariat

Establishing 'One Health Hubs' in South Asia

South Asian countries are at high risk for the Avian and Human Influenza (AHI), as the H5N1 virus has actively circulated in Bangladesh, Bhutan, India, and Nepal. Since end-2003, there have been almost 500 outbreaks in animals in the region.

In collaboration with WHO, FAO, OIE and UNICEF, the World Bank and the multidonor AHI Facility (which is funding by the European Commission and nine other donors) finance nine projects in South Asia at a total cost of $ 92.6 million, which includes a new initiative, "Regional Training Program in Epidemiology and Biosecurity." Benefiting seven countries in the Region—Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka—the regional training program is financed by the AHI Facility and seeks to (i) provide a total of 70 animal and human health specialists with on-line training at Master's level in epidemiology and (ii) establish "One Health" hubs or centers of excellence in epidemiology in the seven countries by strengthening existing national epidemiology institutions. The Program is implemented by Massey University in New Zealand.

The Regional Training Program is one attempt to support a mid- to long-term strategy to prevent and manage AHI and other zoonoses by building local capacity and a regional network. The ongoing projects have helped contain outbreaks in South Asia; however, countries are now faced with a need to shift from emergency operations to mid- to long-term local capacity development in an effort to manage emerging and re-emerging zoonoses. The Regional Training Program brings animal and human specialists together with an emphasis on the interface, while providing the trainees with specialized courses. The 70 specialists will play a key role in establishing and managing "One Health" hubs in their respective countries.

Source: World Bank

GLOBAL SUPPORT TO COUNTRY PROGRAMS

NATIONAL HUMAN AND ANIMAL HEALTH SYSTEMS ASSESSMENT TOOLS AND BRIDGES

Performance of veterinary and human public health systems is vital to health and economic development. For infectious diseases, the strength of a public health system in any one country affects the health and economic security of other countries. The defenses against contagion are only as strong as the weakest link. Weak public health systems in developing countries not only harm the wellbeing of poor people and economic development of those countries, but they also reduce welfare in other countries, including in wealthy countries that have capable national public health systems.

This GPAI project was completed in April 2014 and provided transformative tools that will enable robust assessments of all countries' public health systems and thus more effective management of risks of contagion and other public health threats. As is shown by every uncontrolled epidemic, such as the recent Ebola epidemic, these investments have extraordinarily high human health benefits, while they also bring high and lasting economic benefits. Indeed, according to Harvard University professor and former US Treasury Secretary Lawrence Summers: "[veterinary and human public health systems are] probably the single most important area for productive investment on behalf of mankind."

In the International Health Regulations (IHR, 2005), member countries are required to assess their national core capacities for surveillance and response to public health events of international concern, and to develop a plan of action to ensure the development of these capacities when needed. They have committed to report their level of compliance with the IHR (2005) to the World Health Assembly on a yearly basis. To facilitate this reporting, WHO has developed a Monitoring Framework and indicators of performance for predefined core capacities and specific hazards. These include capacities to respond to zoonosis and food safety events, and therefore the contribution of the animal public health sector is crucial in the implementation of the IHR (2005).

The OIE's well-developed systematic evaluation of the Performance of Veterinary Services (PVS) with regard to intergovernmental standards (initial PVS Evaluation) is on a voluntary basis; the process includes quinquennial costed operational budgets based on integrating the PVS Evaluation findings with national priorities (PVS Gap Analysis (PVS Costing Tool)); assistance with national Veterinary Legislation (PVS Veterinary Legislation Support Program); review and improvement of the Veterinary Laboratory network (PVS Pathway Laboratory mission and Laboratory Twinning projects); strengthening and harmonizing Veterinary Education Establishments to align with corresponding OIE guidelines (Veterinary Education Establishment Twinning); ensuring excellence of the veterinary profession in the private sector by setting standards and establishing measures regarding education and licensing (Veterinary Statutory Body Twinning); and, a consistent mechanism for the monitoring and evaluation of progress of all components (regular PVS Evaluation Follow-up missions).

The project table below highlights some accomplishments supported by the AHIF grant to WHO and OIE within the GPAI. The main achievement was to develop and refine harmonized operational assessment tools and a guide for implementation. The work was carried out by WHO and OIE, the leading international organizations on human and animal health. Use of the tools that were developed will contribute to increase capacity of countries to address priority diseases, including zoonoses, pandemic threats, and increasing antimicrobial resistance. Use of the tools will also help build synergies among human and animal public health systems. As of April 2014, the tools are available from OIE and WHO for use by all countries and their partners.

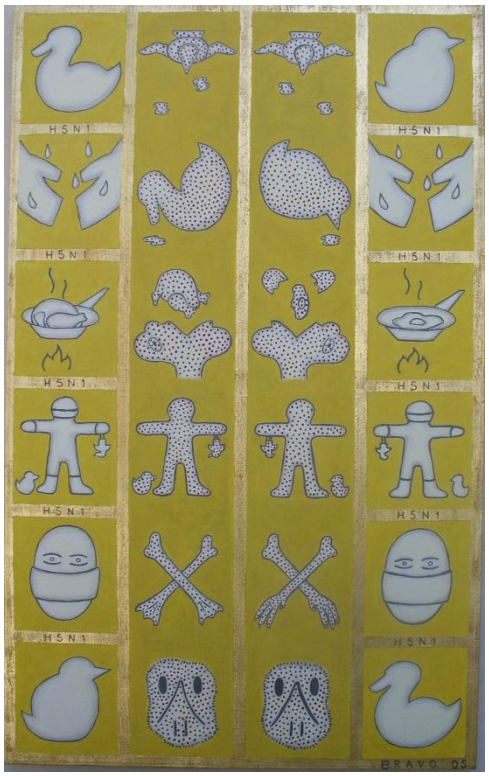
Component	Accomplishments
Development of tools for the further deployment and implementation of WHO International Health Regulations (IHR, 2005)	Thanks to this project, WHO developed several analytical tools to help countries and WHO evaluate the gaps in national capacities hindering compliance with the requirements of the IHR (2005); the Tools furthermore identify ways and the costs to reduce the capacity gaps in a sustainable manner. The specific tools and related activities were: a. **WHO's costing tool prototype can cost the inputs associated with Core Capacities in the IHR framework.** The Tool's architecture aligns with the Check List of Indicators used for each of the Core Capacities in the IHR Monitoring Framework. For each indicator, possible actions to achieve an expected capacity and associated cost inputs were identified. This approach helped align the costing tool with the OIE PVS Gap Analysis (PVS Costing Tool). An excel-supported prototype was developed with the "Costs, Effectiveness, Expenditure & Priority Setting" Department in WHO. This tool generates costs associated with the implementation of measures to strengthen country compliance with IHR requirements. The WHO Regional Offices, in coordination with WHO Headquarters, identified countries where the tool has begun to be field tested. b. **Readjustment of the WHO assessment tool for IHR.** A mapping of the overlaps between the PVS Pathway and WHO IHR capacities Monitoring Framework (IHR MF) resulted in a matrix linking the PVS Critical Competencies and the IHR Core Capacities. Complementarities between the indicators used in the two sectors were identified; this revealed that data in PVS Evaluations can greatly facilitate the work of the IHR National Focal Points. PVS Evaluation reports contain explicit data on the contribution of Veterinary Services to the Core Capacities defined in the IHR (2005). Responding to 98 out of the 256 questions in the IHR MF Questionnaire requires input from Veterinary Services; such input can be extracted from 36 out of the 47 PVS Critical Competencies. The new WHO-OIE Handbook for the assessment of capacities at the human animal interface provides guidance on taking advantage of OIE PVS Pathway outcomes. c. **Improvement of the WHO laboratory assessment tool.** OIE and WHO analyzed the OIE PVS Pathway Laboratory Tool and the WHO Laboratory Assessment Tool, to determine their respective coverage, overlaps, synergies, differences, and gaps. Adjustments then improved the tools. d. **Laboratory Quality Management System.** WHO explored how the Laboratory Quality Management System (LQMS) Tools could better address the human-animal health interface, engaging with veterinary laboratory staff from Burundi, Cambodia, Cameroon, Democratic Republic of Congo, Republic of Congo, Sao Tome & Principe, and Cambodia as well as from the Pacific region. Country professionals were very positive about a cross-sectoral approach for training in order to 'speak the same language'. The most relevant topics included: support for shipping and testing of specimens, reagents and equipment management; personnel management; facilities and safety; and standard operating procedures writing and management. Training on biosecurity covered bio-risk management for laboratory users and infectious substance shipping. e. **Antimicrobial resistance (AMR) laboratory-based surveillance**. WHO country offices jointly with national counterparts implemented small projects to better understand AMR interactions between the animal and human health sectors. f. **Workshops and trainings for WHO experts**. These included sensitization of Regional and National Focal Points for IHR to One Health and the assessment tools and bridges being developed. Experts from Azerbaijan,

Component	Accomplishments
	Bhutan, Cameroun, Cote d'Ivoire, Indonesia, Jordan, Kenya, Madagascar, Morocco, Philippines, Thailand, Tunisia, Uganda, and other countries benefited. Moreover, two WHO experts attended the PVS Pathway Laboratory Mission and Tools training and are now certified by the OIE for conducting PVS Pathway Laboratory missions. g. **Participation of WHO experts in PVS Pathway missions.** WHO experts have participated in the following PVS Pathway missions to several countries, bringing human public health perspectives and learning about veterinary public health capacity assessments.
Refinement of OIE Performance of Veterinary Services (PVS) Pathway Tools	a. **Refinement of OIE PVS Tools to evaluate the level of compliance of Veterinary Services.** Modifications have primarily concerned the competencies for veterinary education, laboratory infrastructure, One Health, food safety, and animal feed safety. The PVS Tool is based on the OIE standards contained in the Terrestrial Animal Health Code. More than just a diagnostic tool, the PVS Evaluation helps countries' to improve management of responsibilities of all actors, in both the private and public sectors (including other ministries and departments). A final result is a culture that promotes and stimulates the national Veterinary Service, inspiring it to improve in all 47 critical competencies until it reaches, when appropriate, level 5 (full compliance with OIE standards). As of June 2014, the OIE has received a total of 129 country requests for a PVS Evaluation mission, of which 117 have already been implemented. As countries are the sole owner of their development efforts and ambitions for the future, the PVS Gap Analysis (PVS Costing Tool) facilitates the definition of a country's Veterinary Services' objectives and priorities. The PVS Gap Analysis mission also encourages the constructive engagement and participation of private sector and consumer groups, among others. b. **Refinement of the specific pilot PVS One Health Tool and integration into the OIE Manual for Assessors.** In missions to Costa Rica, Kenya, and the Philippines, there was collaboration with public health and wildlife services and a hybrid capacity-building approach where the Veterinary Services themselves initiated identification of areas where collaboration and capacity building could improve performance. This experience was shared with WHO and others, recommending that the One Health approach should simultaneously enhance the existing PVS evaluation and offer discussions that focus on One Health approaches. Conscious efforts increased intersectoral collaboration by the Veterinary Services with other partners, particularly the Competent Authorities of public health and wildlife services, to achieve quality of performance of the Veterinary Services. In the 6th Edition of the PVS Manual of the Assessor, Chapter 3.3 on One Health highlights the Critical Competencies, which may require the involvement of more than one Competent Authority in order to achieve compliance with OIE standards. The results of a PVS Evaluation mission can also contribute to a country's understanding of its level of IHR (2005) compliance and how the Veterinary Services can contribute to public health outcomes, and therefore to a country's IHR compliance. c. **Development and testing of the OIE PVS Manual and Tool for Veterinary Laboratories.** A PVS Pathway Laboratory Mission not only determines the resources needed by the national veterinary laboratory network, but also evaluates the pertinence of its structure and its viability. A national laboratory network's relationships with all other service providers are analyzed. The PVS Pathway Laboratory Mission Manual and Tool has

Component	Accomplishments
	been finalized. To date, four pilot PVS Laboratory missions took place (Laos, Libya, Tanzania, and Tunisia) and more are planned. **d. Training of PVS Pathway experts and staff from OIE and WHO on PVS Pathway Tools.** Achievements included a five-day course for 48 OIE-certified PVS Pathway experts and a three-day course on laboratory assessment missions for 16 participants (including 2 from WHO). **e. Missions to countries requesting support in the implementation of the PVS Pathway.** The project supported OIE's PVS missions to fifteen countries in all regions. **f. Participation of OIE experts in WHO IHR missions & vice versa.** Five WHO experts joined OIE's PVS missions, and more opportunities are planned. **g. Workshop with the World Bank to explore how to improve the use of PVS Pathway mission outputs for World Bank operations.** This took place in Washington, DC in February 2014.
Operational Manual on good governance of human and animal health services	The two standard-setting organizations jointly prepared The WHO-OIE Manual *'Good governance at the human-animal interface: Bridging WHO and OIE Tools for the assessment of national capacities'* (2014). Part I introduces the concepts of governance and of good governance. It provides details on the global legal basis for human and animal disease notification and intergovernmental standards. It reviews experiences with coordinated prevention of diseases at the human-animal interface, in particular diseases with high public health and animal health impacts. Part II reviews the support available in the WHO and the OIE to assist their members, and the two sectors' overlapping complementarities. It aims to clarify the benefits that countries and others can obtain from using the tools, how the tools complement and reinforce each other, and how their use benefits the other sector as well. It highlights the cross-sectoral activities and cooperation areas for human and animal health services to effectively address key diseases and issues causing negative impacts on public health. Comprehensive information on the WHO IHR Monitoring Framework and the OIE PVS Pathway makes clear their synergies. The outcomes of two national workshops (in Azerbaijan and Thailand), on the tools and bridges, are presented and the approach will be deployed by WHO and OIE going forward. The Operational Manual is available: http://www.oie.int/en/for-the-media/press-releases/detail/article/bridging-who-and-oie-tools-to-better-control-global-health-risks-at-the-human-animal-interface

ART TO RAISE AWARENESS OF PANDEMIC RISK

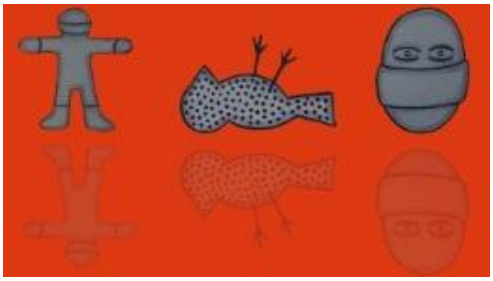
In 2006 the World Bank received a generous gift of nine paintings in gold leaf on canvas: the *Avian Flu Series* by Mexican artist Gerardo Bravo Garcia. The artist contacted senior management of the World Bank and offered to donate the artwork to the World Bank Art Collection. He felt that the World Bank was best-placed to make the world safer in the face of the pandemic threat. He was concerned about pandemic risk and the catastrophe that a pandemic could cause for the world because developing countries would be hardest-hit.



According to the World Bank's Art Curator, "the visual and emotional impact that Mr. Bravo's work has on staff is remarkable", and "the use of artworks to talk about complex topics has been very successful in the past. We hope we will be able to educate people on a more pro-active preventive behavior on avian flu with the presentation of Mr. Bravo's series."[3]

The UN System Influenza Coordinator and the World Bank used the images from these nine paintings on the covers of all global progress reports for five ministerial conferences on avian and pandemic influenza in 2006-10, as well as on some GPAI project documents.

The paintings were exhibited in prominent places in the World Bank buildings in Washington, DC for several years. However, lately the Art Curator has struggled to find space for the paintings that communicate the ever-present pandemic risk. Even the World Bank's Executive Directors' offices complained that they do not like to look at reminders of pandemic risk when walking down their hallway. It's unpleasant and scary. The paintings thus stayed most of the time in storage since 2009.



Art with a message about the need to prevent a catastrophic disaster may therefore remain hidden from view, unable to help communicate a message about a real threat. Risk awareness is, however, the necessary first step toward improved risk management. Absence of communications about a top global catastrophic risk is possible even in the main global development institution that has a strong interest in reducing pandemic risk. Reduction of pandemic risk is a necessary precondition to sustained achievement of the goals of elimination of extreme poverty and boosting of shared prosperity. It also enhances the capacity of World Bank borrowers to repay their loans.

[3] This blog entry discusses how the World Bank received the artwork: http://chinademocracy.blogspot.com/2007/02/world-bank-adopts-works-from-csn-bird.html.

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This report reviews some of the accomplishments of the Global Program for Avian Influenza Control and Human Pandemic Preparedness and Response (GPAI). This multisectoral program comprised 72 projects in 60 developing countries in all regions and received $1.3 billion in financing from the World Bank. This support for GPAI projects was one of the World Bank's contributions to a coordinated global response to the threats of avian and pandemic influenzas, which benefited from financing of $4 billion from 35 donors in 2006-2013. Thanks to this support, developing countries strengthened their capacity for early and effective disease control, bringing substantial public health and economic benefits to the countries and to the world. According to Harvard University professor and former US Treasury Secretary Lawrence Summers, "[veterinary and human public health systems are] probably the single most important area for productive investment on behalf of mankind." Indeed, circulation of the highly pathogenic avian flu virus was reduced, helping to lessen the likelihood of onset of a pandemic. Moreover, the projects improved public health systems for reducing locally-relevant health threats. The report presents a brief background on the global program and cross-country accomplishments and then highlights accomplishments for each project, by region.

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