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USAID/INDONESIA AVIAN AND PANDEMIC INFLUENZA (API) PROGRAM EVALUATION: 2009–2014

FEBRUARY 2014

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CONTENTS

ACRONYMS

AI	Avian Influenza
AIP-EID	Australia Indonesian Partnership for Emerging Infectious Diseases
ARI	Acute Respiratory Infection
API	Avian and Pandemic Influenza
ASUH	*Aman, Sehat, Utuh, dan Halal* (Safe, Healthy, Wholesome and Halal)
AusAid	Australian International Aid
BAPPEDA	Development Planning Agency at provincial and district level
BBalitvet	Veterinary research laboratory in Bogor belonging to Indonesian MoA
BKOW	Badan Kerjasama Organisasi Wanita (Women's Organization Cooperation)
Bupati	District Head
C&D	Cleaning and Disinfection
CBAIC	Community-Based Avian Influenza Control Project
CDC	US Center for Disease Control and Prevention
CKAP	Clinicians' Knowledge, Attitudes and Practices
CMU	Campaign Management Unit
CPH	Commercial Poultry Health
CSO	Civil Society Organization
DAH	Directorate of Animal Health
DAI	Development Alternatives, Inc.
DELIVER	USAID program for supply chain management and commodity security
DG	Director General
DGLAHS	Directorate General of Livestock and Animal Health Services
DHO	District Health Service
DIC	Disease Investigation Center
Dinas	Local government service office
DKI Jakarta	Province of Jakarta
DOC	Day old chick
DSO	Disease Surveillance Officer (Ministry of Health)
EPT	Emerging Pandemic Threats
EWARS	Emergency Warning Alert and Response System
FAO	Food and Agricultural Organization of the United Nations

FMD	Foot and Mouth Disease
GPS	Grand Parent Stock
GOI	Government of Indonesia
GOPAN	Indonesian Association of Independent Poultry Producers (Sector 3)
H1N1	An Influenza A subtype (H=Hemaglutinin and N=Neuroaminidase)
H5N1	An Influenza A subtype (H=Hemaglutinin and N=Neuroaminidase)
H7N9	An Influenza A subtype (H=Hemaglutinin and N=Neuroaminidase)
H10N8	An Influenza A subtype (H=Hemaglutinin and N=Neuroaminidase)
HIV	Human Immunodeficiency Virus
HPAI	Highly Pathogenic Avian Influenza
IEC	Information, Education and Communication
IDP	Indonesian Dutch Partnership
IHR	International Health Regulations
ILI	Influenza Like Illness
ILRI	International Livestock Research Institute
INVAK	Intensive vaccination program
IPB	*Institut Pertanian Bogor* (Bogor Agricultural University)
IVM	Influenza Virus Monitoring
Jabodetabek	Greater Jakarta area (consisting of Jakarta, Bogor, Depok, Tangerang and Bekasi)
JHU-CCP	Johns Hopkins Bloomberg School of Public Health, Center for Communication Program
JICA	Japan International Cooperation Agency
JSI	John Snow, Inc.
KOMNAS FBPI	Indonesian National Committee for Avian Influenza Control and Pandemic Influenza Preparedness
Komnas Zoonoses	National Commission on Zoonotic Control
KVM	Community Vaccination Coordinator
LBM	Live Bird Market
LPAI	Low Pathogenic Avian Influenza
MERS-CoV	Middle East Respiratory Disease – Corona Virus
MoA	Ministry of Agriculture
MoH	Ministry of Health
NGO	Non-Governmental Organization
NIHRD	National Institute of Health Research and Development
NPI	Non-Pharmaceutical Intervention

NVS	National Veterinary Service
OFFLU	OIE-FAO Network for expertise on animal influenza
OIE	World Organization for Animal Health
OR	Operational Research
ORI-HPAI	Operational Research in Indonesia for HPAI (an ILRI project)
PCR	Polymerase Chain Reaction
PDSR	Participatory Disease Surveillance and Response
PERDA	Law
PHO	Provincial Health Office
PKK	*Pemberdayaan Kesejahteraan Keluarga* (women's welfare group)
PMI	*Palang Merah Indonesia*, the Indonesian Red Cross
PPE	Personal Protective Equipment
PSP	Private Sector Partnership
PVUK	Commercial Poultry Veterinary Officer
Puskesmas	Community Health center
RRU	Rapid Response Unit
RRT	Rapid Response Team
SAFE	Strategies Against Flu Emergence
SARI	Severe Acute Respiratory Infection
SOP	Standard Operating Procedure
TB	Tuberculosis
TS	Technical Service
USAID	United States Agency for International Development
WHO	World Health Organization

EXECUTIVE SUMMARY

EVALUATION PURPOSE AND BACKGROUND

The purpose of this evaluation of the USAID / Indonesia Avian and Pandemic Influenza (API) program was to review and evaluate its progress and performance, since the last program assessment in 2009. The main objective of the evaluation was to provide insights and important feedback to each of the partners and stakeholders, including the strengths and areas where technical, administrative, and management efforts could be improved.

In 2006, USAID became involved in API control in Indonesia, in response to the first human deaths that had just occurred in Indonesia during 2005. In 2006 and 2007 USAID awarded contracts to 5 implementing partners: FAO, WHO, DAI, JSI and ILRI. Most of these contracts were renewed in 2010 and 2011 with additional funding through 2012 and 2013. Program activities have included a wide range of API control activities on both the animal and human health sides. Indonesia has received special attention from USAID and the international community because it has the highest cumulative number (as per 24 January 2014[1]) of reported human cases (195), deaths (163) and fatality rate (83%), among the countries where H5N1 is endemic in poultry. Though the number of confirmed human cases with H5N1 has decreased, only 3 confirmed cases in 2013, the threat of animal to human transmission remains. The HPAI H5N1 virus remains endemic in poultry in Indonesia, with a new clade (2.3.2) having been discovered in 2013. The threat to humans continues with the emergence of new diseases in the region such as MERS-CoV, and other subtypes of avian influenza viruses like low pathogenic avian influenza (LPAI) H7N9 and H10N8.

EVALUATION DESIGN, METHODS AND LIMITATIONS

The evaluation was designed to review and evaluate API control activities both at the national and local levels in Indonesia. The sites visited and people interviewed were located in Provinces of Yogyakarta (DIY), West Java, Central Java, Banten, and Jakarta DKI, where USAID activities have been more concentrated in these regions because they are AI high-risk areas. The data collection methods included: 1) in-depth interviews with key partners who managed or received US government funding, 2) site visits to communities that were targeted by the API funding, 3) small-group discussions, and 4) a literature review of background documentation and products from the API Program. The nine overarching evaluation questions, as stated within the evaluation Scope of Work were used as guidance for the data collection. Each approach used to collect data, as well as the locations visited is discussed in more detail in the section on Evaluation Methods and Limitations.

FINDINGS AND CONCLUSIONS

On the animal health side, the evaluation team found that the most useful and sustainable USAID funded disease control activities which should continue are: 1) poultry commercial sector involvement, 2) market surveillance, 3) laboratory capability strengthening, 4) influenza virus monitoring / effective vaccines on market, 5) epidemiology studies, 6) cold chain management, logistics & training, 7) biosecurity training for poultry farms, 8) cleaning and disinfection of trucks, 9) consumer awareness of ASUH *(safe, healthy, wholesome, and Halal product),* and 10) poultry teaching farms.

[1] http://www.who.int/influenza/human_animal_interface/EN_GIP_20140124CumulativeNumberH5N1cases.pdf?ua=1

On the human health side, the most useful and sustainable activities which USAID should continue to support include: 1) laboratory network 2) surveillance system, EWARS (with laboratory capacity) and District Surveillance, 3) hospital and healthcare facility preparedness and infection control planning and testing, 4) case detection and case management of SARI, and 5) working with potential/committed NGOs and CSOs.

It appears that public and government support for API control programs is waning, therefore in order to increase support and ensure a continued political and financial commitment from the GOI and the private sector, the evaluation team is recommending: regular advocacy to high level government officers, participation of the Ministry of Trade with MoA and MoH in improving markets, a national poultry health program, continuing engagement of civil-society organization, and strengthening the role of a national coordination body.

The next steps needed for controlling avian influenza in poultry are: 1) establishment / strengthen of central veterinary authority, 2) national poultry health program, 3) a food safety program, 4) quarantine and movement control, 5) Ministry of Trade participation with Ministry of Agriculture and Ministry of Health in markets, 6) continued epidemiology studies, and 7) updated National Strategic Plan and road map to AI free zones.

On the human health side, the next steps for preventing human deaths from API are: 1) establish guidance for community-health providers in low-resource settings to prepare and respond to acute respiratory infectious disease outbreaks, 2) expand SARI surveillance to identify non-influenza viruses, 3) strengthen and promote health communication messages that reduce risk through respiratory hygiene, hand-washing, and social distancing when ill (non-pharmaceutical interventions), 4) improve communication and coordination between central level leadership and community health providers (district and provincial), including private health service providers, 5) continuing education opportunities to strengthen existing knowledge and update on state of the art guidance, 6) review and update National Plan based on updated knowledge and threats, 7) integrate extraordinary and zoonotic events with new universal health care, and 8) increase research and partnership with academic community and epidemiologist to better understand transmission.

To summarize what's needed to deal with threats like avian and pandemic influenza viruses in Indonesia, the support needs to strengthen processes and not focus too narrowly at a few specific goals.

I. INTRODUCTION

EVALUATION PURPOSE

This evaluation was conducted to assess the USAID/Indonesia Avian and Pandemic Influenza (API) Program performance and its impact from 2009 until present. The purpose of the evaluation was to provide insights and important feedback to each of the partners and stakeholders, including the strengths and areas where technical, administrative, and management efforts could be improved. This evaluation report was also intended to provide evidence and lessons learned for improving USAID/Indonesia program designs, strategies, and policies. The main focus of this evaluation was to assess and analyze the individual program components that comprise the USAID/Indonesia API Program and to determine the impact and progress towards the intended program goals, and examine synergy between program components.

This evaluation report therefore also will serve:

- To provide information on the impact made by each component of program to prevent and (1) control avian influenza and (2) to strengthen animal and public health systems including relevant issues, sustainability, and cost effectiveness;
- To assess how well the different components worked together and helps to foster a 'One Health approach' and multi-sector engagement;
- To determine to what extent the USAID API Program is meeting the objectives and what challenges, weakness, and lessons learned can be drawn from implementation of this program;
- To examine whether implementations of these programs contribute to the goals of the Indonesian governmental (National – Districts) policies and programs; and
- To provide recommendations as the basis from which the USAID can better target efforts, particularly in a decreased budget environment, to ensure that our targeted effort can make a big impact.

The intended audience for the evaluation report includes USAID/Indonesia, specifically the Office of Health; USAID/Washington; US-CDC Indonesia, the Government of Indonesia, and other donors.

USAID/Indonesia will consider and integrate the evaluation recommendations to future API activities, and will share lessons learned and best practices with other implementing partners including the USAID Emerging Pandemic Threats (EPT) program, and share lessons learned with the related stakeholders.

EVALUATION QUESTIONS

The evaluation addressed the following nine questions:

1. To what extent has the program activities made an impact to mitigate the risks of influenza on humans and animals?
2. To what extent has the program activities made an impact to strengthen animal and human health systems in Indonesia?
3. To what extent has the program activity strengthen capacity of the national and sub-national (province and district) government, private sector, community, and other stakeholders?

4. What is the contribution of each project to the overall USAID API program goals?
5. How replicable, adaptable/adoptable, sustainable are the programs/program components?
6. How can the program design, management, and implementation become more efficient, effective and relevant toward achieving program goals?
7. How effective has the collaboration/coordination among the programs been in maximizing efforts and achieving greater results?
8. How can local and national ownership and future commitment to continued implementation of good practices/lesson learned be enhanced?
9. What are the key focus points needed by the country to sustain an effective control effort for AI?

EVALUATION TEAM

The evaluation team was comprised of the following members:

- Dr. Percy Hawkes, Team Leader and International Animal Health Specialist
- Mr. Ricardo Echalar, International Human Health Specialist
- Dr. Setyawan Budiharta, Indonesian Animal Health Specialist
- Ms. Susy Soenarjo, Indonesian Human Health Specialist
- Ms. Sri (Yuni) Wahyuni, Local Logistics Coordinator
- Mr. Yuri Satya Rahman, Local Interpreter/Translator

The evaluation was conducted between December 11, 2013 and February 7, 2014, including the assessment trip within Indonesia January 3–February 4, 2014.

II. PROJECT BACKGROUND

HISTORY OF H5N1 IN INDONESIA

The first reports of poultry and human deaths due to HPAI H5N1 were reported in China as early as 1997, but in 2003 and 2004, the virus remerged in China and the neighboring countries of Korea, Japan, Vietnam, Cambodia, Laos, Malaysia, Thailand and Indonesia. In Indonesia, the disease was first detected in poultry in January of 2004. The first human case of H5N1 was confirmed in Indonesia in July of 2005. By December of 2005, the disease in poultry had spread to 23 of the 33 provinces in Indonesia causing more than 10.5 million chickens to die in more than 151 districts and cities. In humans, by December of 2005, the virus in Indonesia alone had caused 13 human fatalities from a total of 20 reported cases.

In 2006, USAID became involved in API control in Indonesia, in response to the human deaths that had just occurred in Indonesia during 2005. With the increasing number of countries affected and human deaths caused by H5N1 the international community was extremely concerned about the possible emergence of a worldwide pandemic of avian influenza, similar to the 1917 Spanish Flu pandemic which had taken an estimated 50 million human lives in 1918. From 2003 to 2009, over 60 countries from Asia to Africa and Europe reported outbreaks of HPAI H5N1. Of these affected countries, only 6 continue to report outbreaks in poultry and deaths in humans; Bangladesh, Cambodia, China, Egypt, Vietnam and Indonesia.

In 2006 and 2007, USAID awarded contracts to 5 implementing partners: FAO, WHO, DAI (CBAIC), JSI and IRLI. Most of these contracts were renewed in 2010 and 2011 with additional funding through 2012 and 2013. Since 2005, when USAID Indonesia funding for API activities started, USAID Indonesia has provided funding in the amount of $118 million dollars[2]. The ILRI funded activities ended in 2007, and the DAI activities ended in May of 2013.

As of January 2014, there have been 195 confirmed cases of H5N1 in humans in Indonesia, with 163 deaths. So far, Indonesia has reported 30% of the human cases reported worldwide (195 of 650) and 42% (163 of 386) of the worldwide mortality, for a mortality rate in Indonesia of 83%. Indonesia has the highest numbers of reported human cases and deaths, as well as the highest mortality rate of the affected countries. In Indonesia, the total number of reported human cases and human fatalities has gone down from an annual high in 2006 of 55 and 45 respectively, to 9 and 9 in 2012, and 3 in 2013. From these numbers, it appears or gives the impression that the number of human cases in Indonesia is going down.

The 2009 H1N1 influenza pandemic created rapid call to action at the global level and within Indonesia as systems were tested and health workers responded to provide assistance in their communities. The H1N1 virus continues to infect people in Indonesia and appears to be the dominant subtype in humans nearly four years after the initial cases were reported. Unfortunately as the pandemic proved to have a lesser severity in comparison to the 1917 Spanish Influenza pandemic and other models that the global health community had anticipated, many now consider influenza to be a non-priority issue. This is a dangerous assumption

[2] Scope of Work, USAID / INDONESIA: INDONESIA AVIAN AND PANDEMIC PROGRAM EVALUATION, Global Health Technical Assistance Project Bridge IV, GH Tech Contract No. AID-OAA-C-13-00113

especially for a country like Indonesia that has large urban populations like Jakarta where influenza and other severe acute respiratory infection outbreaks have the opportunity to amplify.

In poultry, the number of reported outbreaks also appears or gives the impression, to be going down. The highest seasonal peak of over 426 outbreaks in village poultry was reported in May 2007. This seasonal high went down to seasonal peaks of 339, 313, and 337 in February for 3 consecutive years, 2008, 2009 and 2010. Most recently the seasonal peak in the month of January of 2013 was 121.[3] On the other hand, virus surveillance with environmental swabs in LBM shows that the H5N1 virus continues to come into markets, regardless of the number of outbreaks reported or not reported in the field. HPAI H5N1 is considered to be present in 31 of Indonesia's 33 provinces.

POULTRY PRODUCTION IN INDONESIA

Poultry meat is the least expensive and major source of animal protein for Indonesians. As the middle class continues to grow, so does the demand and consumption of poultry meat. The poultry meat industry continues to grow at an estimated 15% per year, with most of the growth occurring in small scale commercial broiler operations with from 5,000 to 30,000 birds being raised in open houses made of bamboo.

One example of the great difficulty of controlling avian influenza in Indonesia, is the huge number of live chickens which enter the greater Jakarta area every day. A 2006 study done by IPB estimated that approximately 300,000 live chickens entered the Greater Jakarta Area daily[4]. However, in 2014, the Poultry Industry and FAO-Indonesia estimate this number to be much higher, around 2 million live birds per day[5]. This large number of live chickens goes to over 1,000 collector yards or LBMs, and at least 1,500 slaughter locations where poultry meat is sold in thousands of markets, restaurants, and kiosks, throughout the city. These birds are shipped mostly in small trucks which usually hold 1,000 -2,000 birds per truck, coming mostly from Western Java, Lampung and Central Java. As a result, there are an estimated 1,000 trucks of live poultry entering and leaving the greater Jakarta area every day. This scenario repeats itself in to a lesser extent in all the other major cities and towns throughout Indonesia.

Because of close proximity and high density of poultry operations, as well as the great mixing of live poultry before slaughter, Indonesia is the perfect place for poultry viruses like H5N1 to become and remain endemic.

[3] FAO Indonesia

[4] Sudarman, A, et.al. 2006. Poultry value chain and Avian Influenza Risk Assessment in Jakarta Surrounding Area. Center for Tropical Animal Studies, IPB, Bogor Agriculture School.

[5] Interview and personal communication with Dr.Eric Brum, FAO ECTAD-Indonesia.

III. EVALUATION METHODS & LIMITATIONS

EVALUATION METHODOLOGY

To understand the Avian and Pandemic Influenza (API) experience both at the national and local levels in Indonesia, the evaluation team employed a multi-prong data collection strategy including, in-depth interviews with key partners who managed or received US government funding, site visits to communities that were targeted by the API funding, small-group discussions, and a literature review of background documentation and products from the API Program. The team was divided into two groups for Animal and Human Health. The nine overarching evaluation questions as stated within the evaluation Scope of Work were used as guidance for the data collection. Each approach is discussed in more detail below.

In-Depth Interviews

Individuals representing organizations including USAID/Indonesia, US CDC, FAO, WHO, ILRI, JHU-CCP (representing the SAFE Program), JSI, and the Government of Indonesia at the central level including individuals from the Ministries of Agriculture and Health were identified and were interviewed using a questionnaire (See Appendix E. Questionnaires).

Site Visits

The evaluation team visited the following locations: Jakarta and surrounding areas, Yogyakarta and surrounding areas, Solo Bandung, Cipanas, and Tasikmalaya. These locations were selected for site visits as they were directly targeted using US Government funding by the implementing partners.

The following are the specific locations that the evaluation team visited:

Animal Health

Provincial Livestock Services

- Yogyakarta
- West Java
- DKI Jakarta

District Livestock and Animal Health Services

- Solo (Province of Central Java)
- Klaten (Province of Central Java)
- Kulonprogo, (Province of DI-Yogyakarta)
- Tasikmalaya (Province of West Java)

Poultry farms

- Solo – CPH group
- Tasikmalaya – PVUK group
- Cikaleker Teaching Farm
- Ciamis – Nurul Huda Teaching Farm

Poultry Collector / Live Bird Markets

- Pasar Semanggi – Solo
- Pasar Bonang – Tangerang (Province of Banten)
- Pasar Kota Bumi – Tangerang.
- Pasar Ramadani – Tangerang.
- Pasar Anyar – Tangerang.
- Rawa Kepiting – East Jakarta (Province of DKI-Jakarta)

Human Health

Yogyakarta DIY

- Yogyakarta Provincial Health Office (PHO)
- Yogyakarta City District Health Office (DHO)
- Gunung Kidul District Health Office (DHO)
- PUSKESMAS Wonosari I
- Wonosari Hospital
- Bantul District Health Office (DHO)
- PUSKESMAS Sewon I
- Bantul POSYANDU

Cianjur

- Cipanas Healthy Market

Bandung

- Aisyiyah West Java Chapter
- Bandung Provincial Health Office (PHO)
- PUSKESMAS Cangkuang
- Hasan Sadikin Hospital

East Jakarta

- Persahabatan Hospital
- PUSKESMAS Matraman
- LabKesDa Provinsi D.K.I. Jakarta

During these site visits, the evaluation team conducted small group discussions, individual interviews, and site observations. The evaluation team collected informational materials and products from the different organizations.

Literature Review

Relevant documents from the API Program in Indonesia were reviewed for secondary data collection, including project reports, products, work plans, and fact sheets. Please see Appendix C. for the list of documents reviewed.

EVALUATION LIMITATIONS

The following are evaluation limitations that must be considered when reviewing this evaluation report. The first has to do with the timing of the evaluation. Some of the API projects had completed their work, including the SAFE Program, ILRI and USAID DELIVER. For the SAFE Program it meant that some key personnel could not be interviewed. The evaluation team did make an effort to interview former SAFE staff and beneficiaries still in Indonesia. In addition, the evaluation team used key SAFE products including the final report and research reports. The evaluation team did meet with USAID DELIVER's manager and a previous animal expert involved in the ILRI Project, who currently works with FAO Indonesia ECTAD.

The period of the assessment (January 2014) in Jakarta was also a challenge at times. Immediately after the New Year holiday meant that some of the key resource people could not devote significant time to being interviewed. The evaluation team tried to maximize their time with each key resource but would have preferred to have more time in some cases.

Questionnaires were developed for this evaluation exercise. See Appendix E. During the evaluation the questionnaires had to be modified based on language and technical/program knowledge of those interviewed. The human health side experienced difficulties with their questionnaires, as many of the respondents were not aware of the specific USAID program activities, but were aware of the support from WHO in a general capacity for systems strengthening. The Ministry of Health, particularly at Central level, is aware that USAID provides funding to WHO. This resulted in more group discussions using the questionnaires as a guide instead of having each individual complete a questionnaire, especially at the district level.

The team employed one professional interpreter/translator for the evaluation. This proved difficult when the team was split into the two health specialties especially for the human health team. Some of the information may not have been captured in the interviews as a result.

The evaluation team visited only USAID/Indonesia target communities in the Provinces of Jakarta, Banten, Yogyakarta, Central Java and West Java. The information collected may not be representational of countrywide avian and pandemic influenza capabilities. To obtain more information on the API in Indonesia, the evaluation team interviewed central level authorities on countrywide programs and met with representatives from the Australian-Indonesian Partnership on Emerging Infectious Diseases (AIP-EID) and the Indonesian-Dutch Partnership (IDP) to collect more information on parallel donor programs.

IV. FINDINGS

Though the number of confirmed human cases with H5N1 has decreased, 3 confirmed cases in 2013, the threat of animal to human transmission remains. The HPAI H5N1 virus remains endemic in poultry in Indonesia, with a new clade (2.3.2) having been discovered in 2013. Disease within poultry populations and possible animal to human infection continues to be a concern in addition to other emerging threats including the MERS-CoV and LPAI H7N9 virus currently circulating in China. Indonesia remains the country with the highest number of confirmed AI cases (195) and 163 deaths (CFR 83%). [6]

First we will address the strengths and successes in the animal and human health systems, which resulted from USAID Indonesia API funded program activities. Then we will discuss the challenges encountered by the USAID Indonesia API funded program activities; challenges both common and specific to the animal and human health funded activities.

STRENGTHS AND SUCCESSES

Human and Animal Health Systems

The common strengths and successes that resulted from both the animal and human health USAID funded API program in Indonesia were:

1. Community engagement
2. Awareness of "One Health" Surveillance
3. Laboratory capacity strengthening

1- Community Engagement

On the animal health side, community engagement was noted as one of the major successes of the USAID funded API activities. The PDSR system brought the district and sub-district animal health offices in contact with the small scale commercial and back yard poultry producers. The CPH and the PVUK programs have brought animal health offices in contact with poultry producer associations and poultry producers. The studies and research on virus strains, appropriate vaccines and vaccination strategies from FAO program activities, such as PDSR, market surveillance, OFFLU and IVM, have brought the national and local animal health authorities in contact with the large poultry breeding farms and hatcheries in Indonesia. FAO's and DAI's work in markets has brought animal health officers in contact with market administrators and workers, LBM vendors and customers, poultry transporters and poultry producers, as well as public health counterparts. DAI's field activities also put local animal health officers in contact with poultry farmers and civil society organizations.

On the human health side, Indonesia accounts more than one third of the 564 confirmed H5N1 infected human cases in the world. The Case Fatality Rate (CFR) of the cases in Indonesia is 83% (by January 2014). This is attributed to delays in seeking care, diagnosis, and initiation of treatment for respiratory diseases. The government has put a significant effort for preparedness and response to the potential pandemic. Yet without community involvement, the effort is meaningless.

[6] WHO Human Animal Interphase report

USAID through CBAIC (2006-2010) and SAFE (2011-2013) has contributed to the increased awareness of the Avian and Pandemic Influenza (API) threats, and to some extent, improved practices in some community groups in some parts of Indonesia. These were achieved through collaborations with several Civil Society Organizations (CSOs) such as Muhammadiyah and the Indonesian Red Cross (PMI) within the CBAIC implementation period, and then continued with PMI, Aisyiyah[7] [8]and COMBINE [9] by SAFE.

CBAIC ensured the dissemination of AI prevention messages to a significant number of populations by:

- Building a network of over 27,000 village AI control volunteers across nine western Indonesian provinces with the help of PMI and Muhammadiyah; This became a base of further initiative which focused on heavily populated provinces of West Java and Yogyakarta, in which the provincial and district governments of the provinces led the initiatives.
- Working with opinion leaders and community representatives, including poultry owners, producers, traders, transporters, slaughterhouses, and vendors; In West Java, CBAIC covered more than 150 community groups, including more than 3,400 local leaders, officials, and members of the poultry supply chain.
- Collaborating with more than 350 farms to increase bio-security and good flock management practices such as controlling access to farms, implementing and practicing proper disinfection techniques, and regularly practicing hand washing with soap.
- Major campaigns with specific action-oriented AI risk-reduction messages (early 2008, early 2009, and late 2009 through early 2010) which reached more than 100 million Indonesians nationwide.
- Integrating the AI messages in to *Desa Siaga*—the Ministry of Health's "alert village" program; This reached more than 1,400 villages across West Java and Yogyakarta and facilitated more than 350 AI master trainers, who in turn trained nearly 3,500 village health cadres across West Java and Yogyakarta.

SAFE (March 2011 – 15 June 2013), which was implemented in 12 high risk and populated districts of West Java and Banten Provinces, ensured an active role of the communities in AI prevention through its four objectives:

- Objective 1: Strengthen and Expand Public Private Partnerships to Improve Good Farming Practices and Limit AI Transmission among Poultry
- Objective 2: Promote Behaviors that Lower the Risk of AI Transmission among Poultry and Increase Knowledge of Signs and Symptoms and Risk Factors for AI Related Illnesses

[7] Aisyiyah is one of Islamic women's organizations, which was founded on 19 May 1917 (97 years ago) by the wife of KH. Ahmad Dahlan, an Islamic leader who believed that education and empowerment could alleviate poverty and frictions. KH. Ahmad Dahlan is a founding father of Muhammadiyah, an organization which is based on the teaching of progressive Islam, an umbrella of Aisyiyah

[8] Aisyiyah Indonesia has 20 million members, leads many various programs of health charity, empowerment and advocacy. It owns 87 hospitals, 175 maternity hospitals, 16 children and maternal health hospitals, 106 health centers, 20 public health posts, 76 children and maternal health posts, as well as nursing/public health schools/colleges, and integrated services posts spread all over Indonesia.

[9] An NGO with community radio as a core activity.

- Objective 3: Increase Knowledge of Signs/Symptoms and Risk Factors for AI Related Illness in People and Promote Behaviors that Improve Household Level Care Seeking in Response to AI Related Illnesses
- Objective 4: Coordinate with and Facilitate Communication among Partners

Within its period of implementation, SAFE was able to ensure:

Objective 1:

- 347 farms had self-financed changes at their farms
- 12 Teaching Farms opened under the SAFE program, four new Teaching Farms were opened completely financed by industry partners;
- GOPAN, the independent farmers' association, took on the communication responsibilities through the SMS system;
- the three academic partners have each taken responsibility for continuing with technical discussion groups; and educational materials such as the farmer-to-farmer video are being reproduced and disseminated widely by the industry.

Objective 2:

- 2,721 vendors had made changes in 69 markets; 846 vendors at the demonstration markets and 1,875 vendors reached by the local government replicating the SAFE program
- Local governments had begun replication of the program with their own resources:
  - Aisyiyah, the largest women's religious organization in Indonesia, had officially adopted the consumer empowerment component of the program nationwide and begun to replicate it
  - Private sector companies had begun to partner with civil society to support the program; and
  - Communication materials had been replicated by inter-ministerial KOMNAS Zoonosis and Aisyiyah
  - The MOH had plans to replicate the radio series and distribute nationally.

Objective 3:

- Healthcare Utilization Survey with 2,560 respondents
- A study on Clinician KAP that included interviews with 545 medical doctors
- Indonesian researchers, MOH, WHO and others had improved information on the care seeking behaviors of communities, and the knowledge and case management practices of physicians; and there was increased comprehension of community response to care seeking messages.

A notable achievement of SAFE in community engagement was scaling-up of consumer empowerment program by Aisyiyah. This women's organization replicated the SAFE-assisted consumer empowerment program to 18 other districts in West Java Province using own funding. This included the reproduction of the project IEC materials and Training of Trainers (TOT) for 36 facilitators for the 18 districts, and high-level advocacy involving authorities and senior officials of key sectors at district level and a large number of community representatives.

The advocacy done by Aisyiyah covered key sectors such as:

1. Trade and Industry District Office (*Dinas Perindag Kabupaten*)
2. Veterinary District Office
3. Environment District Office
4. Cleaning and Landscaping District Office
5. District Health Office (DHO)

Aisyiyah gained both political and budget support from the *Bupati*, the district authority, in all implementing districts in West Java. Through Aisyiyah, other national women organizations such PKK and BKOW were also engaged in AI prevention through consumer empowerment program.

At a later stage, at national level, Aisyiyah Indonesia adopted the consumer empowerment program on AI and Healthy Poultry nation-wide, covering all 33 provinces in the country

The consumer empowerment program by Aisyiyah used various channels:

1. Al Quran reading groups to socialize AI and healthy poultry
2. Consumer visits to markets to advocate for improvements
3. Advocacy meetings with local government authorities and relevant sectors at district and sub-district level, followed by workshops with opinion/community/religious leaders
4. Radio activities: talk shows, airing of Islamic words of wisdom linked to AI risk reduction
5. Social media socialization (Twitter, Facebook, and website) → *On Facebook they have over 5,000 friends that they can communicate with on key messages*.
6. Religious activities → Pocket books on healthy markets and poultry products linked to Al Qur'an verses were produced for religious leaders
7. The consumer empowerment program has been a powerful community engagement initiative. It facilitates women to gain better knowledge, awareness and practice of AI risk reduction (through knowledge of healthy poultry and personal hygiene) and to practice prompt care seeking when experiencing flu symptoms (and informing the medical practitioners of contact history with poultry). As a result, they become smart buyers and advocates for a market change. They are the one who could change chicken and live birds vendors to sell healthy poultry and have clean kiosks. Both CBAIC and SAFE worked closely and relied on input from CDC, USDA, WHO, and FAO.

2- Awareness of One Health Surveillance

An achievement of the API Program for both animal and human health is the awareness and information coordination between animal and human health surveillance systems in Indonesia. Through the API Program, WHO and FAO worked to establish stronger awareness and coordination between animal and human health surveillance systems. This was most successful at the district level.

The WHO Integrated Surveillance for Avian Influenza (IS-AI) project that ended in 2010 was designed in part so that when a District Surveillance Officer (DSO) receives information from a PDSR (MoA) on an outbreak of H5N1 in poultry, the DSO will conduct active surveillance for Influenza-like Illness (ILI) among people who have had contact with poultry and/or environmental contaminants. From the animal health side, when there is a human case, the PDSR can also be activated when there is a confirmed human to identify the possible cause of

infection and to follow-up on rumors regarding outbreaks in poultry.[10] This created a new approach to disease surveillance for both human and animal health actors in Indonesia.

From the evaluation interviews with staff at District Health Offices including Bantul, Bandung, and Yogyakarta City, District Surveillance Officers are aware of their counterparts in the PDSR network and indicated that they rely on PDSR to provide information on suspected outbreaks in poultry. However, since the number of reported AI cases has been decreasing, the level of coordination has decreased. There is an opportunity to build on this coordination between the sectors as part of the One Health framework, which can be applied to other zoonotic diseases.

3- Laboratory Capacity Strengthening

Through the support provided by FAO, WHO, and the USAID DELIVER Project, laboratory capacity has been strengthened through the API program. This includes the work done to improve sample collecting, shipping and handling of specimens, cold chain, and testing. The USAID DELIVER Project provided technical assistance in assessing laboratory capacities in API targeted facilities, the development of Standard Operating Procedures (SOPs), and the procurement and dissemination of key commodities including vaccines, cold chain resources (refrigerators, coolers, ice packs) and Personal Protection Equipment (PPE).

The animal health labs throughout Indonesia, both government and private have been greatly strengthened by the OFFlu and IVM programs. The great number of surveillance samples received and tested from the PDSR and market surveillance systems has provided the basis for laboratory training and capacity building, as well as the designation of reference centers for PCR tests and sequencing. The OFFlu and IVM programs have also benefited and strengthened the private animal health laboratories owned by the large poultry companies in Indonesia, through sharing of protocols, samples and training.

In the Animal Health System

The strengths and successes in the animal health system that resulted from USAID funded API program activities in Indonesia were:

1. Capacity building
2. H5N1 disease surveillance
3. Virus tracking, monitoring and appropriate vaccination strategies
4. Cold chain and supplies logistics

1-Capacity building

The USAID funded API activities in Indonesia have made a significant contribution toward strengthening the animal and human health systems in Indonesia. The animal health system has benefited the most from USAID funded activities because the public and private sectors of animal health are not as well developed as the human health side. After eradicating FMD in 1983, Indonesia has not had to deal with a major animal health emergency until avian influenza H5N1 came along in 2004. Avian Influenza has been Indonesia's first attempt to control a disease without a centralized veterinary authority.

[10] Integrated Surveillance for Avian Influenza (IS-AI), 2010 Report, World Health Organization

USAID funded activities have built government capacity in the following areas: 1) community engagement, 2) disease surveillance and diagnosis, 3) virus tracking and characterization, 4) appropriate poultry vaccines and vaccination strategies, 5) biosecurity, and 6) cold chain and supplies logistics.

Capacity has also been built in the private sector who participated in the USAID funded activities. This includes poultry farmers, associations, feed and service providers, transporters, LBM market owners, workers and vendors. They have learned valuable lessons in the areas of biosecurity and sanitation, the appropriate use of vaccines for avian influenza.

2-H5N1 Disease Surveillance

There are 2 surveillance systems for HPAI H5N1 in Indonesia; 1) the PDSR system which collects samples from backyard village poultry, and 2) the market surveillance (environmental swabs in LBMs), which collects samples in markets supplied by commercial poultry farms.

These surveillance systems have been most useful for monitoring the virus strains needed in vaccines, alerting the human health authorities of the location of outbreaks, and learning more about the epidemiology and distribution of the disease in poultry.

The **PDSR system** for HPAI H5N1 in poultry in Indonesia began in 2006 with an FAO project patterned after the PDS (Participatory Disease Surveillance) system used in Africa to find the last few cases of Rinderpest. This project received funding from USAID, AusAid and JICA. By September 2008, 2,123 PDSR officers in Indonesia had been trained and were working in an estimated 20,000 villages (30% of Indonesia's villages) from 27 of 33 provinces[11].

It should be noted that up until December of 2012, the GOI PDSR field officers received extra pay funded by USAID for disease surveillance activities. Since then, many inspectors are reluctant to continue their surveillance work with the same enthusiasm because they no longer receive the extra compensation they were used to. Also since December 2012, some PDSR officers have changed jobs, resulting in a reduction in active PDSR officers and the number of reported outbreaks in back yard poultry. In 2012 there were 1,845 PDSR officers actively involved in surveillance, and in 2103 the number of active PDSR officers dropped to 1,233. It should also be mentioned that the number of actively reporting PDSR officers does not include animal health personnel who are now reporting disease outbreaks using the SMS Gateway system.[12]

From official PDSR reports, the number of reported outbreaks in poultry appears to be going down. The highest seasonal peak of just over 406 outbreaks in village poultry was reported in May 2007. This seasonal peak went down to 339, 313 and 337 during the peak months of February during 3 consecutive years, 2008, 2009 and 2010. Most recently the seasonal peak in the month of January of 2013 was just over 121. This shows that the PDSR system is sensitive and capable of detecting seasonal variations and peaks in the outbreaks of H5N1. However, this reduction could be attributed to the fact that outbreaks are less likely to be observed due to the reduced virulence of virus, and also due to surveillance fatigue.

[11] Brian Perry, Independent Evaluation of FAO's PDSR Programme in Indonesia

[12] FAO Indonesia.

FAO (2011)[13] previously reported that **Surveillance of Markets and Collection Yards** had revealed that environmental contamination with H5 subtype influenza viruses was detected throughout the year in markets and collection yards. More than 50 percent of markets tested in and arround Jakarta were positive for the influenza A virus, and in most months more than 50 percent of the influenza viruses were H5 subtype viruses.

The market surveillance system entails taking environmental swabs on a monthly basis from LBMs. This system has shown to be very effective and inexpensive because the field viruses that come from outlaying commercial farms converge in the markets and are easily collected with environmental swabs. While the PDSR system only gathers samples from village backyard poultry, the market surveillance system gathers samples coming from both village and commercial poultry farms. Sampling in markets is preferred over sampling in the field because it avoids the expense of mobilizing field inspectors.

The market surveillance program has the added advantage of being able to continue identifying viruses coming from farms and villages, even if the PDSR field surveillance system were to end.

3- Virus Tracking, Monitoring and Appropriate Vaccination Strategies

The H5N1 subtype of highly pathogenic avian influenza (HPAI) was reported from Indonesia in 2003. The government policy permitting the use of vaccination to prevent the disease was adopted in 2004. The development of the Influenza Virus Monitoring (IVM) system began in late 2007. This is a formal program for monitoring of genetic and antigenic variation in circulating HPAI virus. The H5N1 isolates were detected through DICs from outbreaks, PDSR system, and routine environmental surveillance samples from live bird market.

The IVM protocol is designed to determine if the isolate need to be considered as new variant. DIC Wates was designated as HPAI reference laboratory. The isolates were subjected to routine examination, then PCR was performed and sequencing was carried out in the Balitvet lab and DIC lab Bukittinggi. An antigenic characterization software tool was developed for an IVM online program. At present, research is still being conducted, and results of an indication of needed vaccine change is still underway. Anyway, in the near future, the emergence of a new clade of HPAI 2.3.2.1. should push the development of new vaccine to prevent the disease, or whether the existing vaccine can still be used.

Appropriate poultry vaccine and vaccination strategy were part of ILRI's project operational research in Indonesia to achieve more effective control of highly pathogenic avian influenza (ORI-HPAI). The objectives of this operational research were (1) to evaluate the feasibility and impact of the implementation of control strategies for HPAI in Indonesia, and (2) to assess risk factors for HPAI outbreaks and collect information on transmission dynamics.

The first objective was achieved by means of a longitudinal study, consisting of:

1. The effectiveness of preventative mass vaccination regimes against the incidence of HPAI in Java.
2. Serological monitoring of mass vaccination campaign.
3. An evaluation of cost effectiveness of HPAI mass vaccination in Indonesia.

[13] FAO,2011. *Approaches to controlling, preventing and eliminating H5N1 Highly Pathogenic Avian Influenza in Endemic Countries.* Animal Production and Health Paper No 171 Rome

4. Adoption of and willingness to pay for animal disease control measure. The case of vaccination for AI control in Indonesia.

The overall recommendation developed by the longitudinal studies was that vaccination could be implemented in a targeted manner, focusing in critical points and integrated within a range of biosecurity interventions.

Some of the districts we visited had adopted this targeted or focal vaccination strategy by Community Vaccination Coordinator (Koordinator Vaksinasi Masyarakat, KVM) under local government budget. The District of Klaten currently has four and Kulonprogo two KVMs. KVMs conduct INVAK (intensive vaccination), a modification of targeted vaccination of ILRI, by moilizing the community to vaccinate part of the village.

In Klaten District, for example, during the operational research, (July 2008 – July 2009) four sub districts were vaccinated using AI vaccine only. In 2009, the number of sub districts vaccinated increased to 13 and in 2013 a total of 24 sub-districts were vaccinated. The vaccinated poultry included village chickens, broilers, layers, and ducks. For the whole Klaten district a total of 572.600 out of 639.200 layer population was vaccinated in 2012.

In spite of the difficulty in mobilizing the community, the KVMs are accepted more openly than before by the farmers. The change of this farmer attitude has encouraged and motivated KVMs to perform theirs obligation. In Yogyakarta, a village communication network was developed for community mobilization. In the city of Yogyakarta 372 persons were involved in the network, in Bantul district 382, Kulonprogo 415, Gunung Kidul 714, and Sleman 667.

The functions of this network include informing animal disease case(s) in his/her village, informing livestock related social and technical problems, and acting as key person for passive surveillance. Members of the network usually are community key persons (village officers, government employer, teacher), health and animal health cadres, and other volunteers. Their main jobs and activity usually slow down their participation in the network.

Capacity building is perceived as one of the greatest successes of FAO projects by the interviewee representing the GoI. Since 2004, FAO has sought to provide assistance to the GOI to strengthen disease control activities which has been weakened by structural adjustment (decentralization). FAO Indonesia program provided ongoing support the DGLAHS focusing on, among others, capacity building. It seems that at present, communication between DAH and subnational animal health is not as smooth as expected. Replication of the programs development has also taken place in several provinces and districts, such as Yogyakarta, Klaten, Kulonprogo, and Tasikmalaya. The willingness of local government to take over the budget of certain programs to some extent, was also seen. PVUK, for example, has given technical assistance to local Sector 3 farmers, and in turn, trust between local government veterinary services and poultry farmers, was built. The technical assistance sometimes goes beyond biosecurity and disease problems but also include husbandry practices.

4-Cold Chain and Supplies Logistics

As a result of the ILRI operational research on vaccination strategies, it became evident that the cold chain for vaccines and vaccination campaigns was very weak. As a result, USAID gave JSI the task of working with the USAID Deliver program to develop cold chains throughout the government animal, and later human health programs. This included purchasing and distributing a large number of refrigerators, freezers, and related equipment to district animal health

laboratories and offices. The cold chain system, along with the cold chain trainers, and logistics support system that was implemented by JSI, was seen by all animal health public employees interviewed, as one of the greatest successes of the USAID funding for API activities in Indonesia.

In the Human Health System

The strengths and successes in the human health system that resulted from USAID funded API program activities in Indonesia were:

1. Increased awareness of AI case detection and case management, transitioning to wider awareness of Severe Acute Respiratory Infections (SARI)
2. National Surveillance strengthened: Early Warning and Response System (EWARS), SARI surveillance, and District Surveillance Officer (DSO)
3. Hospital Pandemic Preparedness and Infection Control
4. Applied AI lessons learned to emerging threats including MERS-CoV and H7N9

1- Increased awareness of AI case detection and case management, transitioning to wider awareness of Severe Acute Respiratory Infections (SARI)

The first WHO funded API project worked to increase awareness for AI case detection and management. Healthcare workers were trained on identifying risk behaviors for AI infection including close contact with poultry that would help them determine suspected cases. Under the new USAID/Indonesia WHO project (2011) the Ministry of Health has been training healthcare workers to increase the awareness for SARI case detection and case management (including AI). This transition building on the AI work will help strengthen capacities across levels and benefit the health system to better prepare and respond to other infectious disease outbreaks.

2- National Surveillance strengthened: Early Warning and Response System (EWARS), SARI surveillance, and District Surveillance Officer (DSO)

The advent of District Surveillance Officers in response to the H5N1 threat has created a strong network for disease information gathering and confirmation. The DSOs work within the District Health Office (two per DHO) with community health centers (PUSKESMAS) and other district health facilities to identify and report suspected H5N1 cases. These DSOs report this information to the Provincial Health Office (PHO), which collects information from each district and produces a weekly report, which is shared with the MoH at the central level. If there is a suspected case of H5N1 or other Severe Acute Respiratory Infection (SARI) of concern then a Rapid Response Team (RRT) will deploy to confirm the disease and provide treatment if needed.

3- Hospital Pandemic Preparedness and Infection Control

During the evaluation, the Wonosari, Hasan Sadakin, and Persahabatan Hospitals were visited. Each indicated that through the support from WHO and MoH that they had developed pandemic plans including infection control through the use of isolation wards. These hospitals have dedicated management and have created multi-disciplinary teams to monitor and manage threats.

4- Applied AI lessons learned to emerging threats including MERS-CoV and H7N9

The Ministry of Health with support from WHO has applied lessons learned from the H5N1 preparedness and response plans to emerging threats including the Middle East Respiratory

Syndrome – Corona Virus (MERS-CoV) and the H7N9 virus currently circulating in China. With the world's largest Muslim population, Indonesia has a high tourism rate to Saudi Arabia for the Hajj and Umrah pilgrimages. This has been a cause for concern with MERS-CoV, which was first reported in 2012 in Saudi Arabia and has been traced back to six countries within the Arabian Peninsula[14]. In response the Ministry of Health has adapted communication materials for travelers to/from Saudi Arabia to raise awareness on MERS-CoV. The same has been done for the H7N9 virus, which was identified in China in 2013.

There have been suspected cases of MERS-CoV and health facilities have applied their H5N1 plans to these cases including using their isolation ward and infection control protocols. This was observed at the Persahabatan Hospital under the East Jakarta Project for an individual who had recently traveled to Saudi Arabia for Umrah and returned with SARI like symptoms. In this case the individual was confirmed to have had H1N1.

CHALLENGES

Common to both Animal and Human Health Activities

The most common challenges encountered by USAID funded API program on both the animal and human health sides were:

1. Public interest and Government support is waning
2. Surveillance fatigue and underreporting due to awareness
3. Decentralization
4. Limited human and physical resources at the district and sub-district levels
5. Limited coordination within ministries and across ministries
6. Limited initiative from KOMNAS ZOONOSES

1- Public Interest and Government Support is Waning

As the number of "reported" cases in both humans an)d poultry has decreased in Indonesia, public interest and government support for avian and pandemic influenza program has waned. Many of the individuals on the human health side that were interviewed indicated that the threat of avian influenza was no longer considered a concern as it had been during the peak between 2005 – 2009. This follows a global trend in regard to the H5N1 virus, especially after the 2009 H1N1 Influenza Pandemic. Visiting the WHO/Indonesia website[15], the last reported situational report is from March 2011 – even though there have been confirmed cases since this date. While the country website is not updated, it should be noted that Indonesia does report all human cases of H5N1 to the WHO, and that the up-to-date cases occurring in Indonesia are posted on WHO's Human-Animal Interface website[16].

The recent outbreak of LPAI H7N9 in China shows that there is still a need for vigilance within the health community to be able to prepare and respond to emerging threats in addition to the endemic HPAI H5N1 virus in Indonesia.

[14] http://www.cdc.gov/coronavirus/mers/

[15] http://www.ino.searo.who.int/EN/Section4/Section10_48.htm

[16] http://www.who.int/influenza/human_animal_interface/en/

2- Surveillance Fatigue and Underreporting Due to Awareness

Even though the number of reported cases in poultry appears to be going down, the disease in poultry is now endemic in poultry and it continues to circulate freely in poultry farms and markets throughout Indonesia. The virus has adapted by becoming less virulent (killing less poultry). Farmers too have adapted, some by increasing biosecurity, some sending birds to market at an early age of 4-5 weeks before they get sick, and layer farmers have adapted by vaccinating their birds. Public interest and government support on the animal health side is waning, not because the disease is disappearing, but because of disease surveillance and control program fatigue. Part of this fatigue may be due to funding and program priorities for other animal diseases such as rabies, and other zoonotic diseases.

This year, 2014 marks the 10th year since the first H5N1 outbreaks were confirmed in Indonesian. With a highly pathogenic virus killing 90-100% of poultry flocks in the beginning, it was easier then, than it is now to maintain the interest of government animal health field officers and the public in general to report disease outbreaks.

It should be noted that all disease surveillance and control program, even very successful disease control programs, over time have to deal with a decline in public and private sector support, in order to sustain enough momentum to achieve success. However, besides this normal disease surveillance and control program fatigue, there are several other factors relating to this program in Indonesia that lead to a reluctance of poultry farmers, and government field officers to continue reporting disease outbreaks in poultry. These other factors are:

- The virus has become endemic throughout Indonesia. Poultry farmers and government field personnel see or hear about the disease almost daily and are so aware of the presence of the disease, that they see no need to report it.
- The H5N1 virus has become less pathogenic over the last 10 years, causing a reduced mortality rate in unvaccinated flocks.
- New vaccines, vaccination strategies and biosecurity help protect layer and breeder flocks
- Why report the disease if government may require culling without compensation
- Why report the disease if neither government nor the poultry industry are able to contain or control the disease. Government is not able to:
  - quarantine or control movement in and out of villages or farms affected by H5N1
  - prevent poultry farmers from sending sick birds to slaughter
  - regulate markets
- USAID funding ended for the PDSR officers' extra compensation, which was an incentive to disease surveillance activities. USAID slowly decreased funding incremental to transition PDSR funding to local governments, same approach was utilized by AUSAID.

On the human health side, patients with flu symptoms are reluctant to seek medical attention until the symptoms have progressed with severe consequences including pneumonia. Patients are still unfamiliar with the symptoms of influenza and may confuse it with the common cold resulting in self-medicating using traditional medicine. There is also a possibility that there are asymptomatic cases that have not been captured in the surveillance data. The NIHRD will begin a study in 2014 to test for antibodies in market workers where H5N1 has been confirmed in

animal/environmental sampling. A USAID funded research project will also study antibody responses and exposure of household members and back yard poultry[17].

Also health providers, over time, become complacent and reluctant to request additional laboratory tests for H5N1 when flu symptoms occur because:

- Influenza-like illnesses are very common
- Confusion/low awareness with the H5N1 case definition
- Only 3 reported cases and three deaths were reported 2013. Therefore, health care providers think there is less chance of flu symptoms being H5N1 than before, compared to 2006, when there were 52 cases and 45 deaths.

3- Decentralization

In 2002, there was a reorganization of the centralized government system in Indonesia to a decentralized system, where the 33 provinces and 497 districts throughout Indonesia became financially autonomous units, receiving their own budgets directly from the Ministry of Finance. The new system had the great advantage of putting operating budgets in the hands of local provinces and districts, enabling them to be more effective in carrying out local government programs. However on the other hand, for animal health programs, it became very difficult, if not impossible to run national disease eradication programs, because the provinces and districts have their own financial autonomy and can choose not to participate. The most common problem or challenge identified by everyone interviewed was the decentralization of the animal health services.

For example, on the animal health side, in 1983[18] before decentralization, Indonesia was able to eradicate Foot and Mouth Disease (FMD) in cattle throughout the entire country. This was only possible because the national animal health authorities had control of the national budget for eradicating FMD. They also had the authority to enforce quarantines, movement control and stamping out procedures in all the provinces and districts in Indonesia.

Now after decentralization, the animal health authorities in the 33 Provinces and 497 Districts in Indonesia have the autonomy to voluntarily accept or ignore national policies, regulations and guidelines relating to animal disease control programs, including Avian Influenza. This makes it very difficult, if not impossible to carry out coordinated nationwide disease prevention and control activities.

The administration of human health services in Indonesia, also changed dramatically when Government of Indonesia (GOI) enacted a legislation on regional autonomy in 2002 (Act no 22/2002). Managerial and financial responsibilities for public and animal health care were decentralized from the central government to the district level, and health care has been increasingly privatized.

The main objectives of decentralization were to decrease central government spending on the delivery of public services and to increase the responsibilities and duties at lower levels of

[17] A USAID University Partnership Project between Universitas Padjadjaran and the University of Colorado will collect serum of household members and surviving poultry after H5N1 outbreaks in the Bandung area to look at antibody responses

[18] OIE World Animal Health Organization

government and with households. The reforms were implemented without sufficient preparation to ensure that the decentralized entities had the capacity to manage the system.

As districts have a significantly greater authority, but with insufficient education or training, planning and implementation of various new national policies and programs, including on public and animal health, have been affected. Most of district legislatives and executives became too concerned about revenue generation. In most districts, including the District of Gunung Kidul in Yogyakarta Province, user's fee from health service is a key revenue center for the local government, after trade services.[19]

In the public health sectors, this has led to an attitude of paying greater attention to hard-ware such as building new facilities which can attract clients to use services or buying equipment without considering the operational and maintenance costs, and less supportive to preventive health care, including to continue and update pandemic preparedness. In a situation where AI cases in humans is considered absent, the local government attention to API preparedness is worsened.

In the health sector, decentralization has negative implications. This includes the limited compliance of the districts to follow the national program guidance and to report to provincial and national level. In surveillance, for instance, it would be unrealistic to expect 100% districts to have regular report on EWARS, although the system in all districts is computerized. As a comparison, prior to decentralization, where things were done manually, all 100% districts reported surveillance data regularly to the provincial health office (PHO), which then continued the report to the central level.

In most parts, the coordination between district health offices (DHOs) and PHO has been decreasing because the DHOs no longer report to PHO, but to the district/city authority (*Bupati* or *Walikota*).

A lack of transparency also gives the district authorities a high level discretion and low level of accountability, which is often misused to the disadvantage of health. In many parts of the country, the district authorities assign people who do not have the relevant background to sit in various key positions in the health sector. Consequently, the program under supervision is not delivering per its portfolio because the person managing the program does not have the necessary knowledge, skills and experience. The pressing need to address human resources distribution at district level is both on quality and quantity.

4- Limited Human and Physical Resources at the District and Sub-district Levels

Decentralization not only leaves the central level government without authority to enforce disease control programs, but it results in the districts allocating their budgets to local priorities, not national priorities, like API control programs. The role of the Central Government is limited to providing guidelines and recommendations to the local governments. Yet, the decision of how to spend their budgets is left up to the districts. The districts visited by the evaluation team, reported that in order to become involved in API related activities, they require additional national funding for personnel and related program resources, since their own budgets and personnel are already dedicated to other local priorities. In a few cases, the national animal health authorities have been able to provided very limited district funding for human resources

[19] Discussion with health officials of DHO Gunung Kidul – Yogyakarta, during a field visit on 8 January 2014.

for pilot projects like the CPH, PVUK and NVS activities. The expanded implementation of these pilot projects and other essential disease prevention and control activities throughout Indonesia cannot happen without a centralized animal health authority and corresponding budget for API program activities.

It should be noted that in emergency situations, the Central Government has the legal authority to force local governments to use their staff for animal and human health emergency operations.

5- Limited Coordination within Ministries and Across Ministries

It is understood that coordination is not easy to materialize, especially because every program/sector has priorities while time is pressing. Yet coordination is something that all parties must invest as it is a means for harmonizing interfaces and ensuring a greater outcome.

This situation has been relatively common for a long period of time. In relation to API, the significant decrease and even almost no human cases of AI since 2010 has caused reduced attention to API prevention and continued preparedness. Coordination is a rare situation, within individual ministries (i.e. Health) and across the ministries, especially between animal and human health sectors at provincial down to sub-district level. The MoA and MoH national and local offices reported that joint disease investigations do occur at the village level, especially when human cases are involved. Some joint investigations occur at the district level when large outbreaks in poultry are confirmed.

On the animal health side, coordination in the area of quarantine and movement control has been difficult. The MoA authority for quarantine and movement control is handled by the Agriculture Quarantine Agency, which is separate from the General Directorate of Livestock and Animal Health Services (DGLAHS). This structural separation of animal quarantine and movement control authority, and the lack of coordination within the MoA has made it difficult for donor organizations to assist with disease control programs that include quarantine and movement control. This is one of the areas currently being addressed by the Australia Indonesian Partnership for Emerging Infectious Diseases (AIP-ED).

In the health sector, there are difficulties with coordination both vertically and horizontally. During the key informant interviews, especially at the district level, decentralization was often mentioned as a reason for limited vertical coordination between district health officials and central public health programs. With authority at the district level, there are competing interests for where resources should be allocated which can cause coordination issues between national level health programs. For instance, many districts do not place routine program data reporting to provincial and central level a priority. Since District Health Offices (DHO) are under district authority, and no longer under PHO as it was under the centralized system, the majority of districts do not perceive reporting to provincial and central level offices mandatory.

Horizontally, within the health sector, a number of units/divisions which have program interface have not established effective coordination. This limited coordination is present at the central level with various offices having limited communication even while working on similar areas. In turn these issues across offices are replicated moving down to the PHO and DHO.

As an example, at the central level, there are various divisions in which surveillance of AI and ILI is a major responsibility. These are the Sub-Directorate Surveillance, the Sub-Directorate Vector-borne Disease (Zoonosis) and the Sub-Directorate of Acute Respiratory Infection (ARI), plus the NIHRD. These four entities have very limited program communication and

coordination and have limited knowledge about the data collected by the other offices. Except NIHRD, the three sub-directorates are under the same Directorate General - Disease Control and Environmental Health (*Ditjen P2-PL*).

The operational research on SARI sentinel, which involves children under five years old and is implemented in hospitals has not been sufficiently communicated with relevant divisions in other DGs, such as Child Health Division – DG Nutrition and Maternal and Child Health, and DG Health Services which oversees hospital care services. The East Jakarta Project which is being implemented in, for instance, Persahabatan Hospital, has not sufficiently engaged the DG Health Services.

At the national level, some forms of coordination between animal and human health still exist. However, at provincial down to sub-district level, coordination between the two key sectors only happens because of personal relationships.

On the human health side, in all locations visited, there is little evidence on coordination with private providers. At present, the government health authorities do not involve them in AI prevention and preparedness as well as other critical public health programs, such as TB or malaria, or to include them as referral points. Especially at district level, district officials do not have a good understanding of how to interact with private providers, and mostly focus on their role as licensor.

The animal health side is doing a better job of working with the private sector. It was evident from the district offices visited, that animal health field officers have been working with poultry industry associations with the CPH and PVUK programs to improve water quality, sanitation of feeders and waterers, feed quality, production records, waste management, vaccination strategies for layers and biosecurity. It is interesting to note that in order to convince the farmers to implement biosecurity and appropriate vaccination strategies, it was necessary to first address the other poultry health related activities, such as quality of water and feed, sanitation of feeders and waterers, production records, etc. The animal health side has learned that poultry health and production records must be treated as one package, in order to be accepted by the farmer. Teaching biosecurity alone without the other aspects had no success.

6- Limited Initiative from KOMNAS

KOMNAS FBPI, (the National Committee for Avian Influenza Control and Pandemic Influenza Preparedness) was first formed in March of 2006 by Presidential Regulation # 6 in an effort for the different Ministries of the GOI to coordinate activities relating to the prevention and control of a pandemic from avian influenza. In May of 2011 (year) KOMNAS was upgraded to a National Commission for Zoonosis, (KOMNAS Zoonosis) by Presidential Decree #30, which added another 5 zoonotic diseases to their responsibility (rabies, anthrax, leptospirosis, plague and brucellosis). Over the years, KOMNAS has not been able to accomplish all that it was designed to do for various reasons:

- Limited capacity at provincial and local levels – but are currently in a process of establishing local/provincial branches called KOMDAs. According to USAID/Indonesia via an Emerging Pandemic Threats (EPT) Program partners meeting, as of March 2013, 19 KOMDAs had been established.
- Inability to make decisions binding upon local governments (decentralization)

- Lack of communication and coordination among Ministries
- Lack of leadership

None of the offices visited reported any initiatives or significant coordination from the old KOMNAS FBPI or from the new KOMNAS Zoonosis. Please note: The team did not meet with any representatives from KOMNAS despite attempting to schedule interviews. The feedback on KOMNAS was from other parties. It should also be noted that even though KOMNAS was invited to the final presentation from the evaluation team at the Ministry of Agriculture, there was no representation in attendance.

Specific to Animal Health Program Activities

The challenges identified, which are specific to animal health API program activities funded by USAID are:

1. Difficulties for GOI at all levels (National-Provincial and District) to feel ownership and full involvement in planning, implementation, analysis, and evaluation
2. Lack of financial commitment from GOI
3. Lack of a Central veterinary authority
4. Discovering local priorities and aligning AI prevention and control to national strategies
5. Training and continuing education of GOI animal health staff

1- Difficulties for GOI at All Levels (National-Provincial-District) to Feel Ownership and Full Involvement in Planning, Implementation, Analysis, and Evaluation

This challenge has been unavoidable and inherent because the GOI and poultry industry were not prepared, and could not have anticipated in 2006, the international response to HPAI in Indonesia. Even though USAID and their program implementers have done their best to include the GOI in the planning, implementation, analysis and evaluation stages of HPAI activities, many GOI personnel expressed concern that the HPAI activities in Indonesia came about because of donor interests and funding sources outside of Indonesia. In many cases, the USAID funded activities were categorized by the people interviewed, as "ad hoc" activities, meaning that the GOI has not taken permanent ownership/funding of the activities. Some of the activities referred to as being "ad hoc" were: C&D of trucks at markets, Private Sector Partnerships, Alert Villages, Teaching Farms, and Information-Education-Communication activities.

This feeling of lack of ownership and full involvement by the GOI staff is also related to or exacerbated by Indonesia's "decentralization" and the lack of a "central veterinary authority".

It should be noted that USAID funded activities have evolved from emergency programming in 2006, such as the PDSR and DSO program activities, to more sustainable long term / complete package efforts, such as IVM, NVS and PVUK on the animal side and SARI and ILI activities on the human health side. USAID Indonesia has been very responsive to the GOI's requests.

2- Lack of Financial Commitment from the GOI

This has been another inherent and unavoidable challenge for USAID HPAI funded activities in Indonesia, especially on the animal health side. The MoA's animal health programs are not as well developed and funded as the MoH's human health programs. Therefore, the GOI counterpart funding for USAID animal health activities has been very limited and unreliable. Decentralization is blamed for the lack of GOI counterpart funding for USAID funded animal health activities.

However, on the positive side, some districts have come forth their own funding for the PDSR and DSO surveillance activities.

3- Central Veterinary Authority

H5N1 was able to spread freely throughout the country when it first came into Indonesia in 2004, partly because there was no central veterinary authority to place quarantines and control the movement of affected flocks and related equipment and materials. This lack of a centralized veterinary authority continues to handicap disease control programs, because villages and districts cannot become free of H5N1 without the coordinated direction from a central veterinary authority.

Although some FAO projects have started to open communication between central Division of Animal Health (DAH) and subnational services, most everyone interviewed feels that the existence of a central or national veterinary authority is needed. The new Indonesian National Law # 18 of 2009 on animal husbandry, states in chapter VII, article 68 that a national veterinary authority is needed, that the government needs to develop a national animal health system, and establish regulations for veterinary public health, as well as regulations to control animal diseases. This law has set the stage for the creation of a centralized veterinary authority, but still is yet to be developed.

It should also be mentioned, that the World Veterinary Organization (OIE) requires every member country, which includes Indonesia, to have a central veterinary officer. It is hoped that the Law #18 of 2009, will lead the creation of a national veterinary authority with authority down to the district and village levels in Indonesia.

4- Discovering Local Priorities and Aligning AI Prevention and Control to National Strategies

This is another inherent challenge for USAID funded API activities. How can a poultry farmer be convinced to improve biosecurity? Or district veterinarians to do surveillance for HPAI? Or a city market to eliminate the sale and slaughter of live birds?

Poultry farmers are reluctant to accept advice to improve biosecurity, without it being part of a more complete package for producing more meat and eggs. The CPH (Commercial Poultry Health) program implemented with USAID funding by FAO, has found that in order to get poultry farmers to implement good biosecurity measures, it is first necessary to help them solve other health related problems relating to water and feed quality, sanitation of waterers and feeders, and book keeping.

District animal health offices are reluctant to do disease surveillance for H5N1, without it being part of a complete package which includes surveillance for other local diseases of concern. FAO has also learned that district animal health offices are more interested in disease surveillance programs where the local diseases of concern are included in the surveillance program, rather than just H5N1.

Poultry dealers and city markets in Jakarta refused to obey a city ordinance that prohibited the transportation, sale and slaughter of live chickens in Jakarta. As a result, the GOI and donor organizations have learned that the elimination of LBMs in large cities in a country like Indonesia, is not an immediate solution, without a larger and more complete package of poultry marketing options and disease prevention measures.

5- Training and Continuing Education of GOI Animal Health Staff

The training level of GOI animal health staff has been a challenge for avian influenza control programs. This is because of the frequent rotation and relocation of officers from one program to another, or one district to another. It is common to have a rotation or turn-over of personnel when heads of offices change at the local and national levels for political reasons or when new officials are elected at the local, provincial or national levels.

Specific to Human Health Program Activities

The challenges identified, which are specific to human health API program activities funded by USAID are:

1. Limited role in market sanitation and strengthen surveillance in partnership with Ministry of Agriculture and Ministry of Trade (critical for disease prevention)
2. Lack of harmonized surveillance and response systems (vertically and horizontally)
3. Case definition and case management
4. Communication channels with varied feedback
5. Laboratory quality control and laboratory staff turnover

1-Limited role in Market Sanitation and Surveillance in Partnership with Ministry of Agriculture and Ministry of Trade (critical for disease prevention)

Market sanitation and surveillance varies across Indonesia. With the continued threat of H5N1 viral transmission and concern over markets, the evaluation team observed that MoH and district health workers have a limited role in market sanitation and surveillance. The Ministry of Agriculture has presence with PDSR officers in some markets that provide guidance and surveillance efforts including animal and environmental sampling. Through the CBAIC and SAFE Projects, the Indonesia Red Cross (PMI) was involved with District Health offices in providing support for the renovation of a limited number of markets. This support included sanitation infrastructure such as hand washing basins, landfills, rubbish bins, etc. However, not all District Health Offices supported these types of activities in the markets.

Sanitation and the health of both vendors and customers need to be accounted for within these markets to help limit possible disease outbreaks including H5N1. For this to happen, the intervention of the MoH and the MoA in promoting health and sanitation is not enough. The Ministry of Trade should also be involved in the design, management and sanitation of the markets. The joint work of the three Ministries of Health, Agriculture and Trade is needed.

2-Lack of Harmonized Surveillance and Response Systems (vertically and horizontally)

The team observed that there are approximately 4 separate units within MoH that manage surveillance efforts that capture some form of API data. This is a challenge for all of those involved at the central level and especially at the district level. This is a result of programming and guidance from WHO and donors including USAID and US CDC that have created individual projects for surveillance including the Early Warning Alert and Response System (EWARS), the Acute Respiratory Infection (ARI) surveillance project, the Zoonotic surveillance unit – especially through the East Jakarta Project, and reporting from hospitals which is under the direction of a separate DG within MoH. Each of these units provided value in training health workers and in capturing data for surveillance purposes. These offices are separate within MoH and should be better coordinated in their data collection and information management especially for the purposes of the International Health Regulations (IHR, 2005). Many of the district health

surveillance officers (DSOs) perform various duties for these individual projects and follow the guidelines under each unit/project. This can create confusion both vertically and horizontally within the health system.

3-Case Definition and Case Management

Several respondents indicated difficulties with the case definition for H5N1 and SARI. Some health workers believed that by the time an individual met the case definition especially for SARI which includes pneumonia, the ability to manage and treat patients was too late. This could contribute to the high case fatality ratio due to the delay in treatment for suspected cases.

With regard to Case Management, part of the funding from USAID/Indonesia has gone to provide additional support in the Integrated Management of Childhood Illness (IMCI). With this funding, the Ministry of Health through the technical support from WHO has built on their previous work in training community health workers on how to manage childhood illness including respiratory illnesses (pneumonia and influenza) and diarrhea. IMCI training has a long history in Indonesia dating back to 1996 through UNICEF and WHO with positive results including the reduction in mortality of children under five years of age.[20] In 2010, a new platform was unveiled to help expand the reach of IMCI in Indonesia through computers. The new Integrated Management of Childhood Illness Computerized Adaptation and Training Tool (ICATT) was rolled out in 2010 and administered to various PUSKESMAS workers. During the evaluation, the team met with some of these individuals who had mixed reviews of their training. The primary issue with this new training was the usage of computers. Though computers meant lower cost and less absenteeism from work, many of those trained had little to no knowledge of computers and computer training courses. This caused a lot of frustration, especially among more senior workers. However according to a study released by the University of Indonesia, the ICATT appears to be an effective tool among individuals who are computer efficient - younger individuals. In training future cadres of health workers, the implementation of ICATT might prove to be a beneficial resource to helping with case management of priority illnesses in children in Indonesia.

4-Communication Channels with Real-time Feedback Loop

Based on interviews with district level health actors, many indicated that they would prefer to have more reliable communication feedback in regard to suspected cases of AI and other SARI. District level health actors provide epidemiological data and laboratory samples, which is sent to the central level of MoH in Jakarta. It is at this time that the district level actors feel that they either do not get confirmation in a fast enough manner (sometimes weeks to months after the initial sample is sent) or in some cases not at all (especially if it is a negative confirmation). Some of the respondents felt this was a result of geography/distance from Jakarta and technology capabilities to receive information. This is not always the case as providers in the East Jakarta Project indicated that they would typically get a confirmation within 24 hours. The central level authorities including NIHRD and the office for Zoonotic Diseases indicated that they provide feedback informally through SMS/Phone and through formal correspondence.

[20] ICATT – Integrated Management of Childhood Illness Computerized Adaptation and Training Tool, Implementation, Case Study: Indonesia (http://www.icatt-training.org/Implementation/Indonesia/tabid/86/Default.aspx)

5-Laboratory Quality Control and Laboratory Staff Turnover

There are two key challenges in laboratory quality control and capabilities. The first is that the health system experiences high staff turnover. Because of this, the people who have been trained on key laboratory skills and technologies including PCR testing, may have changed positions within the health system. New staff is placed within in the laboratories that may not have the technical capacity and quality control knowledge.

Another issue is that as suspected AI cases in humans are declining, the persons responsible for laboratory confirmation are not applying their laboratory skills frequently resulting in the loss of trained skills. These individuals who have been trained on laboratory technologies including PCR should be able to apply their skills to confirm non-influenza related diseases.

V. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The conclusions will be divided into three parts: 1) Reducing Risk, 2) Useful Sustainable Activities and 3) Lessons Learned.

Reducing Risk

It is impossible to measure how much or if USAID funded API activities in Indonesia have indeed reduced the risk of poultry and humans getting sick because of avian influenza. Even though the number of outbreaks in poultry and humans appears to be going down, this may be due, in part to surveillance fatigue and other factors, as previously mentioned in this report. The disease in poultry continues to be endemic and circulates freely (without quarantines and movement control) throughout 31 of the 33 provinces of Indonesia. As a result, the human population is still at risk. The reduction in observed and reported outbreaks in poultry is partly because the virus is less virulent and kills fewer birds. However, when a new clade of the virus appears, like 2.3.2 with a higher mortality rate in poultry than the older, somewhat attenuated 2.1 clade, the number of observed and reported outbreaks increases, letting us know that the H5N1 virus is still circulating.

Farmers have adapted to the disease by: 1) vaccinating their birds (in the case of layer hens and breeding farms), 2) sending their broilers to market at an earlier age before they get sick, and 3) improving sanitation and biosecurity. These measure reduce the risk of individual flocks and/or birds within a flock from getting sick with H5N1. Therefore, it might be speculated that the amount of virus (infective doses) circulating in farms and markets may be reduced, even when the virus is still present.

The vaccination of birds helps to protect individual birds from dying, but it doesn't keep the virus from continuing to circulate through flocks. Poultry layer farms who vaccinate their birds against avian influenza, report that the disease continues to circulate through their flock, but that they only see a reduction in the number of eggs produced and a slight increase in the mortality rate.

If the number of human cases and deaths from H5N1 in 2013 in Indonesia is a true indication that humans are at less risk of getting H5N1 now than in 2008-2009, it might be concluded that the amount of virus (infective doses) circulating in farms and markets may be less now than before. This information is theoretical, because there are no scientific studies regarding the amount of circulating live H5N1 virus in farms and markets.

In summary, it can be said that USAID funding of API programs has made a significant contributions on the animal side by enabling poultry farmers to reduce the risk of individual flocks or individual birds from getting sick with H5N1. These contributions include the availability of appropriate vaccines and vaccination strategies for avian influenza, as well as knowledge about improved biosecurity and sanitation.

On the human health side, it can be concluded that USAID funding has implemented activities which can reduce the risk of humans getting sick and/or dying from avian influenza: 1) improved awareness and sanitation for people in contact with poultry, and 2) improved surveillance, diagnosis and treatment of patients with flu like symptoms.

Useful Sustainable Activities

Animal Health Activities

Based on our interviews and findings, these are the useful sustainable animal health API activities which have been funded by USAID Indonesia:

1. Poultry commercial sector involvement
2. Market surveillance
3. Laboratory capabilities
4. Influenza virus monitoring / Effective vaccines on market
5. Epidemiology
6. Cold chain management, logistics & training
7. Biosecurity on poultry farms
8. C&D of trucks
9. Consumer awareness of ASUH product
10. Teaching farms

From the data collected through interviews and questionnaires, the most useful sustainable activities for AI prevention and control perceived by the donor included capability of laboratories, market surveillance, epidemiology and logistics. FAO perceived that commercial sector involvement, provided by the USAID funded program activities, IVM, PVUK/CPH and NVS are the most useful sustainable activities, while interviewees representing GOI viewed laboratory capability, IVM, PVUK/CPH and NVS as the most useful activities. The activities of PVUK and NVS were also perceived by local government officers as the most useful sustainable activities for the prevention and control of AI in Indonesia. Many other activities were identified as useful depending on the location of the person being interviewed and the questions asked by the interviewer. For example, live bird market officers have different views than PVUK officers, etc.

From the interview with sector 3 farmers we found that they really wanted to be involved actively in the program of prevention and control of AI. Although these farmers are under PVUK/CPH program, some of them sometimes relied on the Technical Service (TS) from poultry shops or bigger companies. Their advice may not be in agreement to what is given by PVUK/CPH officers. Poultry shops also have extension worker giving advice to the farmers. We happened to put one such extension worker to a test about dead bird disposal to which he did not give the correct answer. Poultry shops provide the farmers with medicine (including vaccine) feed and DOC. They usually have a strong relationship with big industry or Sector 1 poultry farmers. It is, therefore, a cohesive partnership between the program implementers and beneficiaries, including all sectors of poultry industry be implemented. The program of Public Private Partnership has provided a ground for such relationship.

1-Poultry Commercial Sector Involvement

The active leadership and involvement of the private sector is essential to any animal disease control program. Their involvement is the only way a disease control program can succeed, especially in Indonesia, a country with "decentralization" where the concept of a central veterinary authority needs to be developed for disease control activities, food safety and national programs that benefit poultry production. The participation and leadership of the national and local poultry associations and the large Sector I and II poultry companies are necessary for sustainable and successful disease control programs.to lead with programs and initiatives to control avian influenza.

2-Market Surveillance

The collection of environmental swab samples in poultry markets is the most effective and efficient way of collecting virus samples for the identification of avian influenza viruses circulating throughout the commercial poultry farms and villages of Indonesia. Environmental swabs in markets has proved to be a much more accurate and cost effective way for disease surveillance.

3-Laboratory Capabilities

The major successes of the USAID funded animal health activities are all rotate around the capabilities of the network of animal health diagnostic laboratories in Indonesia. Disease surveillance in village and markets, virus strain monitoring and vaccine production cannot continue without the continued emphasis on laboratory capacity. The continued training and standardization of protocols, as well as the maintenance and certification of laboratory equipment should be part of sustainable laboratory capacities.

4-Influenza Virus Monitoring / Effective Vaccines on Market

ILRI's Operational Research (OR) on HPAI indicated that vaccination in chicken could be implemented in a target manner, focusing in critical point and integrated with a range of biosecurity, intervention. Under IVM program, an antigenic characterization software tool was developed as IVM online. In this program all DIC's do the collection of samples and antigenic prescreening. Balitvet and DIC Bukittinggi labs do the sequencing of the prescreened isolates. It was hoped that IVM online will detect the appropriate vaccine in the field, because the circulating virus keeps undergoing antigenic drift. So far, the vaccines found in the market are usually the "old" vaccine. It seems that it takes a long time before IVM online produces a "good" vaccine. Meanwhile, a new clade (2.3.2.1) of AI virus emerged in 2012, causing clinical signs and mortality in duck. The old virus (Clade 2.1.3) is nonpathogenic in ducks. Several questions thus arise and need to be answered concerning the vaccine to be used:

1. Does the old vaccine (clade 2.1.3) have a high efficacy in poultry in the field?
2. What is the efficacy of vaccine of clade 2.3.2.1 in poultry infected with clade 2.1.3?
3. Is there any difference between the vaccination trial of the two vaccines in laboratory and in the field?
4. If there is, what might be the cause of the differences?
5. If there is no cross-protection between the two, is it possible for Indonesia to produce and utilize a cocktail vaccine?

There are still many other questions to be answered before coming to a really good and efficacious vaccine.

5-Epidemiology

Much still needs to be learned about the epidemiology of avian influenza viruses in Indonesia. The dynamics of disease transmission in a tropical country, with a high poultry and human population where the disease has become endemic needs to be studied further. There is a need to know more about the primary endemic production areas or cycles that keep the virus circulating. This type of information is needed to optimize disease control measures.

ORI-HPAI analyzed the pattern of HPAI outbreaks diagnosed by PDSR during January 2006- July 2008. This analysis revealed, that:

1. There is evidence to support that HPAI has seasonal fluctuation, with peaks between February and April and a trough in November to December.
2. There is considerable regional variability in the patterns of case detection, and therefore, data aggregated nationally could be misleading and should be interpreted with caution. Further research is required to understand the variations between regions
3. There is considerable variation between and within districts in the implementation of HPAI control measures. Generally more culling and vaccination has occurred in areas reporting a higher number of HPAI cases, however, exceptions occur.

Results of transmissibility

1. Moderate level of vaccination resulted in a statistically significant reduction of the transmission of HPAI both within and between flocks.
2. The level of population immunity necessary to interrupt transmission between birds with a household flock is 63.8 % (CI 45%: 59.8%–67.2%) and 51.7% (CI 95%: 43.5%–55.4%) between households.
3. Muscovy ducks, non-commercial chickens and geese increased the risk of outbreaks to happen, broilers decreased it, and ducks and pigeons did not influence the probability of an outbreak.

The number of reported cases and outbreaks are decreasing in all areas we visited. As pointed by ORI-HPAI, perhaps the vaccination protected the poultry in areas from HPAI infection. Also, there might areas where a large number of cases have been found, but no response recorded. These dictate that further deeper study on the epidemiology of AI is needed, in order to find out primary endemic cycle/area.

6-Cold Chain Management & Training

The cold chain trainers prepared by JSI play were seen by all government personnel interviewed as an important part of all future animal disease control programs. The work of JSI with cold chains is useful for more than avian influenza control activities. Government district offices will need to maintain the freezers and related cold chain equipment and skills in order to continue efforts to control avian influenza.

7-Biosecurity Poultry Farms

Biosecurity on poultry farms, is the only way broiler farmers have to prevent avian influenza from coming into their farms. Layer farmers and poultry breeding farms have the additional option of vaccination again avian influenza, but biosecurity is still the most important measure to control avian influenza at the farm level. USAID funded programs with FAO and DAI have sponsored a lot of successful program activities and events to promote good biosecurity. Biosecurity is seen as perhaps the most basic, sustainable and useful activities needing promoted for preventing and controlling API. Biosecurity needs promoted on a grand scale throughout the entire poultry industry, in order to make any significant progress toward controlling avian influenza.

8-C&D of Trucks

The C&D of trucks before they enter or return to poultry farms is also a very basic and sustainable part of farm biosecurity. Stopping the spread of viruses from the markets back to the farms is basic and must be part of good biosecurity for controlling avian influenza. The FAO's project of C&D of trucks at LBMs is gaining experience in how to implement C&D of trucks on a wider scale throughout Java.

9-Consumer Awareness of ASUH Product

Most consumers in Indonesia prefer shopping at LBMs when buying poultry meat. This is because they trust the meat will taste better and the meat will be fresher and healthier. Preference for poultry meat from LBM's over modern poultry meat markets is a major obstacle for preventing the spread of avian influenza in both poultry and humans. Humans are unnecessarily exposed to live chickens which are shedding H5N1 virus at LBM's. At the same, poultry trucks and poultry workers become contaminated with H5N1 virus in LBMs, and as they return to poultry farms, they infect new batches of healthy chickens with H5N1.

This can be reduced by promoting ASUH poultry meat products to consumers. The acronym ASUH, stands for "safe, healthy, wholesome, and Halal certified". In the case of poultry, this is poultry meat from formal slaughter houses with sanitary and Halal inspection. After slaughter and inspection, the product is immediately chilled or frozen. An increased awareness and preference for ASUH poultry meat will reduce the number of poultry trucks going to LBMs. This in turn will proportionally reduce the number of people exposed to H5N1 virus, as well as the number of poultry farms re-infected by contaminated trucks.

10-Teaching farms

Promoting good biosecurity, along with the other poultry management and husbandry skill related to poultry health, can best be promoted when teaching farms are linked to formal teaching institutions. DAI's SAFE program promoted good biosecurity at selected poultry farms, which later served as teaching farms for neighboring poultry farms. DAI's SAFE program had the great success with this method of promoting good biosecurity worked at the Nurul Huda Technical High School in Ciamis, the Bogor Agriculture University, also in West Java Province. This method of promoting biosecurity in the poultry industry reaches thousands of students who will work with and / or own poultry farms, as soon as they graduate.

Human Health Activities

Based on our interviews and findings, these are the useful sustainable human health API activities which have been funded by USAID Indonesia:

1. Laboratory network
2. Surveillance system, EWARS (with laboratory capacity) and District Surveillance
3. Hospital and healthcare facility preparedness and infection control planning and testing
4. Case detection and case management of SARI, especially in children to reduce mortality caused by pneumonia. Begin roll-out of oxygen therapy guidance.

1-Laboratory Network

From the evaluation site visit observations within Java and interviews with Key Informants, it appears that the laboratory network has been strengthened from the district level to the Ministry of Health. This was especially done through the technical assistance provided by the USAID DELIVER Project which helped in various ways including strengthening cold chain and introducing SOPs that were needed. This work needs to be sustained in order to have an effective mechanism for disease confirmation whether it being H5N1, MERS-CoV, or H7N9.

The Hasan Sadikin hospital laboratory (BSL-2) continually receives high marks in proficiency tests and could be a valuable model for other hospital laboratories within the network. The LabKesDa in Jakarta has also demonstrated a strong capacity for laboratory practices and could be replicated in other provinces.

2-Surveillance System, EWARS (with laboratory capacity) and District Surveillance

The surveillance system like the laboratory network has been strengthened through the API program. The District Surveillance Officers are a valuable resource to gather and provide surveillance information. These DSOs should be used for a wider range of illnesses and should be part of the EWARS reporting mechanism and should be better integrated with laboratories, especially within hospitals.

3-Hospital and Healthcare Facility Preparedness and Infection Control Planning and Testing

The evaluation team visited three hospitals that had various levels of preparedness and infection control capabilities. The Wonosari hospital had the least resources for preparedness and response, including not having a microbiology lab and/or ability to fully manage and treat a large outbreak of SARI. This appears to be a missed opportunity as this hospital is part of the ARI Surveillance Project. It would be beneficial to improve this hospitals laboratory capacity as part of the ARI Surveillance Project. Both the Hasan Sadikin and Persahabatan hospitals have procedures in place to prepare and respond to an outbreak. These hospitals could be used as a model for other hospitals in order to prepare and respond to emerging threats including AI.

4-Case detection and case management of SARI, Especially in Children to Reduce Mortality Caused by Pneumonia. Begin roll-out of oxygen therapy guidance.

Case detection of SARI has been strengthened since 2011 through the WHO project. However, case management especially in low-resource settings is an area of concern. Healthcare workers and facilities are aware of what needs to be done but the reality is that it can be difficult to provide effective treatment especially during a surge in patients seeking care.

The oxygen therapy component will begin its rollout to help hospitals and PUSKESMAS manage SARI cases. This could be beneficial for all SARI cases especially in children. However, there is a concern especially at the PUSKESMAS level regarding sufficient access and availability to oxygen for this treatment.

LESSONS LEARNED

When all parties work together in a coordinated manner avian influenza can be controlled. However, the country needs to continue to prepare itself for internal threats (new AI clade) and externally (H7N9, MERS-CoV, etc). As the risk remains there is a need to have a proactive coordinating mechanism that helps all parties work to continue to control the threat of avian influenza and other emerging threats.

Animal Health

Based on our interviews and findings, these are some of the most important lessons learned from the animal health API activities funded by USAID Indonesia:

1. Cold chain management on vaccination program
2. Massive Vaccination Not Effective
3. Market sampling
4. Farmer engagement
5. Jakarta prohibition LBM

1-Cold Chain Management on Vaccination Program

The lesson learned here is that cold chains can be successfully implemented in the field (districts and sub district animal health offices). It just requires a lot of discipline. JSI had great success by training selected animal health staff personnel to be cold chain trainers throughout Indonesia. Cold chains are useful not only for avian influenza, but for other animal health programs, like rabies, brucellosis, anthrax, etc.

2-Massive Vaccination Not Effective

ILRI and the GOI showed that massive vaccination was not a useful or feasible method for controlling avian influenza in poultry in Indonesia. It was not cost effective because of the high cost of the vaccine, the large number and frequency of poultry farms needing vaccinated, and the number of vaccinators required. It was however concluded that focalized flock vaccination was useful on poultry layer and poultry breeding farms, in order to prevent the large mortality in flocks due to H5N1. It was also concluded that focalized vaccination in back yard village poultry could also be useful to reduce the exposure of humans to sick birds in areas where human deaths were occurring.

3-Market Sampling

FAO and the GOI showed that disease surveillance for avian influenza virus strains in LBMs is much more cost effective and accurate than the PDSR surveillance system. Market samples are collected by a limited number of animal health inspectors using environmental swabs once a month to collect samples for PCR testing. Whereas the PDSR surveillance system entails the displacement of hundreds of district animal health officers on a continual daily basis to visit backyard and village poultry producers to collect samples from sick birds.

4-Farmer Engagement

Farmer engagement in the program of AI control was initiated through PDSR, PVUK, CPH, market C&D and KVM. What the farmers need seems to be real examples of how to do good husbandry practices, including biosecurity and poultry health. When they realized that good practices increase their profit, they will participate the program willingly. CPH farmers in Solo, for example, acknowledge that the simple biosecurity practices increases their profit significantly. In Tasikmalaya, interaction between PVUK officer and poultry shop extension worker created a unique relationship. A deeper coordination between local government and poultry shop, and between the central government and Sector I, Sector II, and farmer associations will significantly improve farmer engagement in the AI control program. Engaging the poultry farmers is key to the success of all avian influenza control activities.

5-Jakarta Prohibition LBM

In April 2007, DKI Jakarta announced a PERDA (law), namely PERDA no 4 of 2007 on Poultry Raising and Sales Control in DKI Jakarta. In article 6 of this PERDA, any entry of food poultry must go directly to collection yards. Article 7 regulates the transition for moving previous existing poultry slaughtering places into the appointed collection yards and slaughter houses. As a part of Market Structuring, FAO assisted the DKI Jakarta government to implement this PERDA. Upon signing, the implementation was delayed until 2010. In 2010 it was delayed again. The project itself ended in 2012. The government of DKI decided to use persuasion, instead of prohibition as the policy to implement the PERDA. Socialization and persuasion were conducted by the district services. In 2013, 8 collecting yards and slaughter site owners of Central Jakarta agreed to move their facilities to Rawa Kepiting. In South Jakarta, 9 agreed to move to Petukangan Utara; and in other cities (North, East and West Jakarta) socialization was carried out and some agreements were achieved.

In summary, little or nothing has been achieved to regulate the estimated 2,000 trucks carry 2 million live birds which enter the greater Jakarta area on a daily basis, going to an estimated 1,000 to 1,500 collector yards and slaughter locations.

The lesson learned is that in Indonesia, it is impossible to close LBMs and the retail sale of live poultry in LBMs in large cities by simply implementing a law. Much more may be needed, such as: consumer education, a change in consumer demand, more formal slaughterhouses, poultry slaughter / meat inspection system, cold chain for poultry meat, and time.

Human Health

Based on our interviews and findings, these are the most important lessons learned from human health API activities funded by USAID Indonesia:

1. CSOs can make an impact
2. Surveillance can be strengthened if there is support from district authority and commitment from District Health Office
3. DSOs can be used for wider surveillance (EWARS)
4. ARI surveillance can detect influenza and other threats
5. Knowing when there are AI outbreaks in poultry can help prepare for human cases

1-CSOs Can Make an Impact

As demonstrated under the CBAIC and SAFE Project, civil-society and community based organizations can make an impact if used to target strategic communities. This was seen with the consumer empowerment project under SAFE with Aisyiyah. Women are often the primary poultry buyers and were identified as a target audience to help prevent H5N1 infections. Through Aisyiyah, SAFE was able to create several communication products that informed women to make better buying decisions. This in turn helped influence vendors change their practices and sell better products and have safer vending spaces. This was also evident with the work through the Indonesian Red Cross (PMI) that employed its wide reach of volunteers to help educate communities on healthy behaviors to prevent both H5N1 (in markets) and in response to the 2009 H1N1 influenza pandemic.

2-Surveillance can be Strengthened if there is Support from District Authority and Commitment from District Health Office

One of the best examples of district level authority support was from the city of Yogyakarta. Within this city, the district level leadership has provided both financial and physical resources to the district health office to implement a community-based surveillance program. This program, which was created in 2007 in response to a dengue outbreak, has expanded for other diseases including influenza. The community-based officers (approximately 50) are used to canvas neighborhoods and help capture disease outbreaks and notify the district surveillance officers. Though there has been resistance in some cases, especially in more affluent neighborhoods, the community-based surveillance officers are often considered valuable members of their community.

3-DSOs can be Used for Wider Surveillance (EWARS)

The District Surveillance Officers (DSOs), which were established and trained due to the H5N1 threat, are integrated within the district health office. As a result, these DSOs have proven to be valuable not only in capturing surveillance data for H5N1, but also for other influenza viruses including H1N1 and Influenza B, and other diseases as well including Dengue. These DSOs can and should be used for wider surveillance under EWARS, which will help provide faster and unified information from the districts.

4-ARI Surveillance can Detect Influenza and Other Threats

The ARI surveillance has shown to be effective in gathering important information that could help serve as an epidemiological baseline and help predict and prevent outbreaks. However, in its current for the ARI surveillance only confirms influenza in its diagnostic testing. The surveillance should expand and attempt to confirm all threats to help strengthen the health systems ability to identify and respond to all threats within Indonesia.

5-Knowing when there are AI Outbreaks in Poultry can Help Prepare for Human Cases

After the work done to improve the knowledge of public health officials on the threat of zoonotic diseases it is important to continue and strengthen the coordination with animal health counterparts. This can help not only when knowing about AI outbreaks but on other diseases including rabies. When the public health officials are better informed on the threats within the animal health spectrum they will be able to prepare and be more sensitive to suspected human cases.

RECOMMENDATIONS

The evaluation team provides the following recommendations to USAID in the following two categories: 1) ensuring continued commitment of public and private sectors in Indonesia, and 2) next needed steps / key focus points toward controlling and preventing API in Indonesia.

1. Ensuring continued commitment for both animal and human health

The API activities which have been funded by USAID since 2006 to the present have strengthened both animal and human health systems, including both the MoA and MoH, as well as the private poultry sector and human health care providers. However, since public interest and government support for API prevention and control activities is waning, we recommend that USAID promote and ensure the continued commitment of the GOI and the private sectors in the following ways.

a. Regular advocacy to high level officers
b. Engage with Whole-of-Society actors including Ministry of Trade for Healthy Markets through an ACTIVE coordinated body like KOMNAS
c. Engage with civil-society organizations like PKK and Aisyiyah that can continue to influence
d. National Poultry Health Program with GOI core funding

a. *Regular advocacy to high-level officers*

As the risk continues within Indonesia with the endemic HPAI H5N1 and external threats like Middle East respiratory syndrome coronavirus (MERS-CoV) and LPAI H7N9, there is a need to continue advocating for avian and pandemic influenza preparedness. WHO and FAO must continue to promote and work towards an enabling environment where government and private sector leadership understand the benefits of preparedness through systems strengthening and coordination from both a cost stand point and as a matter of national security. At this time, Indonesia is not prepared for a severe pandemic where systems will be tested and health facilities will experience a large surge in patients seeking care in addition to those already needing care for priority illnesses including TB and HIV. Those individuals and units that have been tasked under the API program should be given training and persuasive data in how to advocate within their ministries and most importantly their direct supervisors.

On the animal health side, additional funding is needed by local government animal health services to perform their functions. In local parliament, budget priority of animal health sector is always "defeated" by other sector. This is due to the fact that the existence of the services is not mandatory in all provinces or districts. In some provinces and districts it might exist with its name, but in others the functions is hidden far under the existing services. In Klaten, animal health is under Agricultural services and even under livestock division as a section of animal health and veterinary public health. In Kulon Progo Animal Health is directly under the Marine, Fishery and Livestock services as a division. It happens that in Kulonprogo the head of their services is a veterinarian. This situation sometimes creates an obstruction to the information flow from DAH. Moreover, the budget is always limited for activities. In Klaten, for example, for 2014 a total budget of IDR100 million is allocated for AI control, consisting of 57.5 million for drug and equipment, 20.9 million for GPS, and 10.6 million for travel. For other strategic animal diseases, a total budget of 79.5 million is allocated. All of the situations above need an advocacy, both nationally and locally. A strong lobby in local parliament is needed. Nationally, the

establishment of a veterinary authority might serve as a part of solution. Audiences of DAH to the governor of certain provinces and bupatis of certain districts may be the other part.

b. Engage with whole-of-society actors including Ministry of Trade for Healthy Markets through an active coordinated body like KOMNAS ZOONOSES

Avian and Pandemic Influenza should not be solely an animal health and public health concern. Pandemics and other large-scale emergencies require a whole-of-society response where various sectors may be called upon to provide assistance. Currently the National Committee of Zoonoses Control (KOMNAS ZOONOSES), which was established under Presidential Decree No. 30 (2011) to "coordinate and synchronize the formulation of national policies and programs for zoonoses control" is the mechanism that reports to the President of Indonesia for dealing with "Extraordinary Events/outbreaks and pandemics due to zoonoses." As the number of AI cases has decreased, KOMNAS ZOONOSES has also decreased its activity in convening and coordinating the various actors. Despite the decrease in AI cases, KOMNAS ZOONOSES should remain proactive and demonstrate strong leadership by working with the various Ministries and partners to prepare for pandemics and other emerging threats.

One of the main actors that must be engaged moving forward is the Ministry of Trade, which is currently not listed as a member of the KOMNAS ZOONOSES under Article 11 of the Presidential Decree. Based on observations and discussions with key informants, markets continue to be one of the biggest concerns for viral transmission. Markets are under the direction of the Ministry of Trade and without their awareness and support to enforce market standards including zoning, hygiene, and sanitation regulations, the virus and other illnesses will continue be a risk for vendors and consumers. The Ministry of Trade needs to be recognized as a formal member of the KOMNAS ZOONOSES.

c. Engage with civil-society organizations like PKK and Aisyiyah that can continue to influence

As observed under both the CBAIC and SAFE Projects, civil-society and community-based organizations can have a positive influence in promoting desirable outcomes. Civil-society and community-based organizations must be engaged moving forward to build on awareness as they have the most direct means of communicating with the people at risk. Aisyiyah showed that by empowering women, buying habits and vendor practices could be modified. Women who are often the primary market customers were effective external influencers that could encourage vendors and markets to have better quality products and cleaner markets. Another group that could be engaged is the PKK (Pembinaan Kesejahteraan Keluarga), which relies on social mobilization and have a strong history of working on health issues. If these women who are often married/related to influential leaders are trained and educated on the primary concerns of API and other SARI, they can be a mechanism for sustaining awareness and preparing communities for outbreaks.

d. National Poultry Health Program with GOI core funding

Despite the fact that poultry meat is by far the main source of animal protein for Indonesians, the MoA does not have a national program for improving poultry production or poultry health. The GOI has not had core funding for poultry health related activities, but the Division of Animal Health has done all they can to provide GOI funding for collaboration with the USAID

funded API program activities. The GOI has had to use much ingenuity to be able to participate in an ad hoc fashion, with avian influenza control programs.

In order for the GOI to be able to continue to participate in a sustainable fashion with poultry health related activities such as API funded activities, a national poultry health program with reliable core funding will be necessary. Poultry health will need to become a national priority. This is not a new idea. The Indonesian Poultry Veterinary Association is promoting this idea with the Division of Animal Health and the FAO office in Indonesia. Other poultry associations and groups should join this effort to create a national poultry health program with core funding throughout Indonesia.

It should be mentioned that Indonesia has already made ruminant production a national priority, with core funding at the national and district levels. Poultry health and production, which has much more of impact on human health and livelihoods in Indonesia, needs the permanent and sustainable attention of the GOI.

2. Next Needed Steps / Key Focus Points

Animal Health

The following are recommendations for next steps in controlling Avian Influenza in Indonesia:

a. Centralized Veterinary Authority
b. National Poultry Health program
c. Food Safety Program
d. Quarantine and movement control
e. Further involvement of other stakeholders: such as Ministry of Trade, Market (Vendor) Associations, etc.
f. Epidemiology - primary endemic areas/cycle
g. Materialize National Strategic Plan / road map to AI Free Zones

a. Centralized Veterinary Authority

The evaluation team urges that the veterinary authority as part of National Animal Health System be materialized as a breakthrough for the obstacles met by the program activities. A National Animal Health System in the form of Government Regulations would become a strong legal back up for animal disease prevention, control and eradication.

b. National Poultry Health program

HPAI is not the only important poultry disease in Indonesia. Based on the experience of AI projects, the evaluation team is in the opinion that a national poultry health program should be developed. The program should become a standard reference to maintain and improve poultry health and the quality of its products.

c. Food Safety Program

Customer preference for buying poultry meat at LBMs, along with the inherent sanitation problems related to LBMs, is perhaps the greatest contributor to humans getting sick with avian influenza. Trucks returning to farms from LBMs, is also one of the greatest contributors to poultry farms becoming infected with avian influenza. As long as poultry meat is marketed in LBMs, humans and poultry back on farms will always be at risk.

Therefore, one of the recommended next steps for reducing the risk of avian influenza is to help change the consumer preference to buying chilled and frozen poultry rather than buying poultry meat at LBMs. Consumer confidence in chilled and frozen poultry meat can only be gained when the poultry industry and the GOI have a poultry meat food safety program which includes best practices, inspection, and cold chain certification at slaughter facilities.

Poultry meat and egg food safety is always part of a larger food safety program, which includes foods of animal origin. Such food safety programs would require viable models be developed for the production, marketing and supply of food of animal origin. The Indonesian Governmental Regulation (PP) No. 95 of 2012 is a legal back up of the activity.

d. Quarantine and movement control

One of the next steps for controlling H5N1 and other future avian influenza viruses in Indonesia, is for the government to have quarantine and movement control authority. Central veterinary authority is necessary for this to happen.

It should be remembered that H7N10, H10N8, H5N8, and H5N2, circulate in other parts of Asia, and can enter Indonesia just as H5N1 did.

e. Further involvement of other stakeholders: such as Ministry of Trade, Market (Vendor) Associations, etc.

Another next step to controlling avian influenza in Indonesia is involving the Ministry of Trade, as an equal partner along with the Ministries of Health and Agriculture, in improving the sanitary conditions in LBMs and markets in general where products of animal origin are sold. Market vendor associations should also be brought in to help. The market place is the most obvious stage where "one health" partners come together to prevent and control zoonotic and food borne diseases. The Ministry of Trade is needed as an equal partner in "one health", especially at LBMs.

f. Epidemiology—primary endemic areas/cycle

The complexity of HPAI epidemiology dictates further investigation on the nature of the disease in Indonesia. Studies should be emphasized on the endemic cycle of the disease to discover ways to combat the disease. Academia could be involved in and asked for conducting research in this area.

g. Materialize National Strategic Plan / road map to AI Free Zones

One of the most important next steps is for the GOI (MoA and MoH) and the poultry industry to update the strategic work plan for controlling HPAI in Indonesia, as well as creating a road map to AI free zones. In December of 2005, the Ministry of Agriculture developed a very good 9-point National Strategic Work Plan for the Progressive Control of HPAI in Indonesia. The nine elements of the Strategic Plan were: 1) campaign management, 2) enhancement of HPAI control in animals, 3) surveillance and epidemiology, 4) laboratory services, 5) national animal quarantine services, 6) legislation and enforcement, 7) communications, 8) research and development, and 9) industry restructuring. Updating the strategic work plan is one of the most important steps for commitment and a feeling of ownership from the GOI and poultry industry.

Human Health

The following are recommendations for next steps for continuing to protect humans from API in Indonesia:

h. Establish guidance for community-health providers in low-resource settings to prepare and respond to acute respiratory infectious disease outbreaks.
i. Expand SARI surveillance to identify non-influenza viruses
j. Strengthen and promote health communication messages that reduce risk through respiratory hygiene, hand-washing, and social distancing when ill (non-pharmaceutical interventions).
k. Improve communication and coordination between central level leadership and community health providers (district and provincial), including private health service providers
l. Continuing education opportunities to strengthen existing knowledge and update on state of the art guidance
m. Review and update National Plan based on updated knowledge and threats.
n. Integrate extraordinary and zoonotic events with new universal health care
o. Increase research and partnership with academic community and epidemiologist to better understand transmission

h. Establish guidance for community-health providers in low-resource settings to prepare and respond to acute respiratory infectious disease outbreaks including better pneumonia case management guidelines.

The level of awareness for case detection and case management for SARI including influenza has increased among healthcare providers. However the reality in some parts of Indonesia suggest that healthcare facilities, especially at the community level (PUSKESMAS) do not have adequate resources to prepare and respond to ARI outbreaks. WHO must provide guidance to the Ministry of Health based on the realities at the community-level. This includes a menu of planning and management guidelines based on low-resource settings that can be applied based on an assessment of community-level resources and skills.

Under the ARI Project, new pneumonia case management will be rolled out including the use of oxygen therapy in clinical settings. This will help address one of the leading causes of mortality in children and hopefully contribute to strengthening the health system in managing acute respiratory infections. The team recommends that this project be monitored to identify areas of success and challenges.

i. Expand SARI surveillance to identify non-influenza viruses

The expansion of the surveillance system to look for broader SARI was initiated under the new WHO project starting in 2011. The SARI project helps to identify not only influenza viruses but also other severe respiratory illnesses that present with pneumonia. However, the cause of some of these illnesses is still unknown beyond influenza. There is an opportunity to identify the causes of these illnesses to help predict future outbreaks and for the proper management of these diseases.

j. Strengthen and promote health communication messages that reduce risk through respiratory hygiene, hand-washing, and social distancing when ill (non-pharmaceutical interventions).

During the site visits to district and provincial health facilities, the team did not observe any health communication materials promoting health behavior messages on non-pharmaceutical

interventions (NPIs) including respiratory hygiene, hand-washing, and social-distancing. These messages, which are the first level of infection prevention especially in low-resource settings can help prevent illnesses like influenza and other illnesses including diarrheal diseases[21], which are one of the primary causes of childhood mortality in Indonesia. These communication messages were employed in the early days of AI and pandemic preparedness through WHO and CBAIC but have since dropped off, most likely as a result of less cases of AI. However, as observed by the team, influenza, including H1N1 is still an issue in many communities and these communication messages promoting NPIs could help mitigate the effects of influenza in communities.

During the initial briefing with WHO, materials were shared that showed messages that were adapted from H5N1 and 2009 H1N1 Influenza Pandemic for the MERS-CoV threat (the evaluation team observed a MERS-CoV poster at the Jakarta International Airport - however it was not in a conspicuous location). The Ministry of Health with support from WHO has demonstrated the ability to quickly adapt and disseminate health communication products in response to emerging threats. However, the MoH Office for Health Promotion should work to continue promoting key health behavior messages including NPIs.

k. Improve communication and coordination between central level leadership and community health providers (district and provincial), including private health service providers

Communication and coordination between central level and community level actors varies due to geography, technology, and other factors. To have a unified preparedness and response to events like a pandemic or other emerging threats, the coordination and communication needs to be improved. The system has seen improvement with bottom-up reporting from the district level to the central level, but there needs to be a stronger effort of the central level to manage the information and provide real-time feedback to the community health responders. This can be done by harmonizing the reporting system for all infectious disease surveillance and by having a dedicated portal for communication. This will reinforce the value of the surveillance system and change the one sided approach as it currently stands in some cases.

In addition, though the evaluation team observed and interviewed only public sector health service providers and facilities, the health system in Indonesia also includes other actors e.g., private sector services. These private sector service providers at the provincial and district level need to be engaged by health authorities in order to improve disease surveillance and outbreak response.

l. Continuing education opportunities to strengthen existing knowledge and update on state of the art guidance

Through the API program a large cadre of health professionals have been trained on best practices and technologies for preparing and responding to infectious disease outbreaks including influenza. These professionals and recently graduated health professionals need to receive continuing education to help strengthen their existing knowledge and update on state of the art guidance. This can also help address the issue of staff turnover so that those individuals who are tasked for this work can be properly trained.

[21] H1N1: Swine Flu's Collateral Health Benefits in Bolivia. Time Magazine, Jean Friedman-Rudovsky, October 22, 2009, http://content.time.com/time/health/article/0,8599,1931223,00.html

m. Review and update National Plan based on updated knowledge and threats.

The National Preparedness and Response Plan needs to be reviewed, tested, and updated to ensure that the guidance provided is based on the most recent global guidance, country situational analysis, and scientific knowledge on emerging threats. The plan should incorporate all necessary actors as part of a whole-of-society approach and engaging One Health actors to help prepare communities for API and other emerging threats.

n. Integrate extraordinary and zoonotic events with new universal health care

On January 1, 2014, Indonesia began the rollout of the Universal Healthcare (UHC) law to provide health insurance coverage for every Indonesian by 2019. Several of the individuals interviewed, especially from Hospitals and Laboratories were concerned about the new UHC law, indicating that the government has not provided enough guidance on cost for service and cost reimbursement. MoH should integrate H5N1 and other SARI in the new law so that there is no interruption in case detection and management and provide information for both healthcare providers and patients.

o. Increase research and partnership with academic community and epidemiologist to better understand transmission

Indonesia remains one of the countries on the forefront in the battle to control and prevent H5N1 infection in humans. As the country with the highest number of clinically confirmed cases there is a need to better understand the epidemiology of the virus including clearly demonstrating which populations are most susceptible, if there is a seasonality to the infections, and behavioral determinants that may make individuals more susceptible. This should be done through a strengthened partnership with the academic community and epidemiologists from the MoH and WHO.

ANNEX I. SCOPE OF WORK

Global Health Technical Assistance Project Bridge IV Project
GH Tech Contract No. AID-OAA-C-13-00113

SCOPE OF WORK
FINAL

(11/20/2013)

I. TITLE: USAID/Indonesia: Indonesia Avian and Pandemic Influenza Program Evaluation

II. Contract: Global Health Technical Assistance Evaluation (GH Tech)

III. PERFORMANCE PERIOD
The consultants are expected to undertake this assignment no more than 42 working days late November 2013 to mid-February 2014.

IV. FUNDING SOURCE
Mission funded (USAID/Indonesia)

V. PURPOSE OF ASSIGNMENT
USAID/Indonesia seeks a team of consultants to provide technical assistance to the Office of Health for evaluation of Implementation of Avian and Pandemic Influenza Program in Indonesia.

VI. SCOPE OF WORK

This scope of work covers evaluation of API Program in Indonesia. This evaluation will provide valuable in-sight information regarding to impact of avian and pandemic influenza (API) prevention and control in the context of technical, social, economic, cultural, and governmental system in Indonesia.

Evaluation will be a review of all USAID Indonesia's efforts to prevent and control Avian and Pandemic Influenza (API) FY 2009-current (2013). The overall objective of the Evaluation is to assess the progress and impact of the USAID API programs, and recommend appropriate measures towards revision of interventions and strategies.

Overview of the Projects

USAID Avian and Pandemic Influenza Program Portfolio in Indonesia

The U.S. Government is the largest donor supporting Indonesia's efforts to control H5N1. USAID supports efforts to reduce the impact of H5N1 in Indonesia on animals and humans and limit the emergence of an influenza pandemic. Since 2005, USAID has provided $118 million to support Avian and Influenza Pandemic (API) control and prevention in Indonesia. USAID activities focus enhancing GOI capacity for integrated animal and human surveillance, cleaning and disinfection of markets, improved biosecurity at farms, strengthening standards of care and health seeking behaviors, and identifying and changing risky behaviors.

USAID API Program Matrix

IMPLEMENTING PARTNERS	SAFE	FAO	WHO	JSI/ DELIVER
STRATEGIC APPROACH				
ANIMAL HEALTH:				
- Continuing monitoring of poultry outbreaks in Sector 4 farms		X		
- Further characterizing of risk dynamics	X	X		
- Strengthening Private Sector Partnership – focus on biosecurity	X	X		
- Focus communications on target populations in high-risk districts	X	X		
HUMAN HEALTH:				
- Ensure sustainable monitoring of H5N1 by supporting:			X	X
* Public & private health worker awareness of AI	X		X	
'* Co-diagnosis of H5N1 & influenza among high-risk ILI cases			X	
'* Laboratory logistics & improved data management systems				X
- Ensure sustained public awareness of H5N1:	X			
- Ensure appropriate care seeking for H5N1 illness	X			
- Ensure case management to minimize risk for H5N1 & influenza transmission & re-assortment:			X	
* Modify clinical management practices & provide training to improve case management and sample collection			X	

Background of Projects to be Evaluated

In addition to the following information, USAID/Indonesia will provide the evaluation team with a package of briefing materials for each project including:

- Program Documents;
- Performance Management Plan (where available);
- Quarterly/Annual Reports (where available);
- Work Plans; and
- Studies and evaluations done by USAID-funded projects.

Current API Program in Indonesia

Food and Agriculture Organization of the United Nations (FAO) (October 2012 – September 2013, USD 5, 200, 000):
OSRO/INS/103/USA: ***Enhancing the capacity of the Government of Indonesia and partners to control highly pathogenic avian influenza (HPAI).*** This current project builds upon the previous OSRO/INS/604/USA project to intensify risk reduction of HPAI in commercial poultry, support Participatory Disease Surveillance and Response (PDSR), reduce and monitor the spread of the virus via the post-production market chain, track antigen variation, improve laboratory capacity. Assistance is also provided for improving the quality and sustainability of support provided to HPAI control in village poultry. Activities have been focused on locations where outbreaks are known to occur throughout the year (Java, N. Sumatra, and Bali).

Strategies Against Flu Emergence (SAFE) (15 March 2011 – May USD 7,258,200)
SAFE is implemented by Development Alternatives, Inc. (DAI) and Johns Hopkins University Center for Communication Programs. SAFE project is designed to assist the Government of Indonesia and the private sector to strengthen their capacity in prevention and response to AI and other emerging pandemic threats. The SAFE project works with Indonesian central and local government institutions, private sector, NGOs, service providers, community groups and other stakeholders to accomplish its program objectives. The main focus areas of SAFE include**:**

- Strengthen and expand Public Private Partnerships to improve biosecurity and Good Farming Practices (GFP) to limit Avian Influenza (AI) transmission among poultry;
- Promote behaviors that lower the risk of AI transmission among poultry and increase knowledge of signs and symptoms and risk factors for AI related illnesses;
- Increase knowledge of signs/symptoms and risk factors for AI related illness in people, and promote behaviors that improve household level care seeking in response to AI related illnesses; as well as
- Coordinate with and facilitate communication among partners

USAID DELIVER (AI Logistic Support) (year 2006 - present, funding US$ 630.000)
The USAID DELIVER project provides public health commodities and other supplies required to effectively and rapidly respond to outbreaks of infectious diseases including H5N1 (Avian Influenza) and Emerging Infectious Diseases with pandemic threat potential. Through this project, USAID provides support for improvement of logistic and laboratory management of Influenza Like Illnesses (ILI) and Severe Acute Respiratory Infection (SARI) networks; enhanced surveillance activities in East Jakarta province all in collaboration with US-CDC; and improvement of medicine and medical

supply unit within the Ministry of Health through the "People that Deliver (PtD) initiative. PtD is a global initiative that aimed to improve health outcomes by developing sustainable excellence in the health workforce for supply chain management and for overcoming existing and emerging health supply challenges.

Strengthening Health System for Acute Respiratory Infection (ARI) Control Project (January 2011- present; USD 5,898,258)

The ongoing outbreak of avian influenza and the reemergence of rabies in Indonesia illustrate the importance of continuing to address the risk to global health security posed by zoonotic EIDs. Indonesia continues to have the highest number of Avian Influenza (AI) human cases with high mortality rate. The evolution from a focused response to avian influenza to a broader risk management of zoonotic diseases is illustrated by the establishment of a ministerial level inter-sectoral National Zoonosis Committee in March 2011. This is in line with the evolving global approach to risk, through the One Health framework, which endeavor to promote risk management through collaborative efforts between animal, ecological (particularly wildlife) and human health systems.

In responding to Avian Influenza H5N1 and other emerging diseases, Government of Indonesia has acted to strengthen country health system capacity for pandemic preparedness and acute respiratory infection control in Indonesia. The main focuses are improving case management and case detection of acute respiratory infection, disaster and pandemic preparedness and disease surveillance. Although some initiatives have been taken, there are still gaps in strengthening the health system for pandemic preparedness and acute respiratory control in Indonesia.

Specific objectives:

- Improve case detection and management of acute respiratory infections particularly influenza in children;
- Build hospital capacity in pandemic preparedness and response and other health emergencies;
- Improve surveillance of acute respiratory infections particularly influenza and other pandemic potential diseases, and integrated surveillance and response for zoonotic diseases; and
- Support health laboratories to detect and report pathogens associated with acute respiratory infections and zoonotic diseases.

Activities are implemented in selected districts in West Java, Banten and DKI Jakarta provinces.

Previous Projects

FAO (OSRO/INS/604/USA 2006-2011) *Reinforcement and Expansion of the Avian Influenza Participatory Disease Surveillance and Response Program in Indonesia*

This USAID funded project began with effective starting date on June 9, 2006 with total budget throughout September 2011 USD 44,200,000. This program provides technical and policy advice to the Ministry of Agriculture, the Directorate General of Livestock Services (DGLS) on participatory disease surveillance and response, donor coordination, and market chain and socio-economic analyses, cleaning and disinfecting programs, tracking antigenic drift and vaccination strategy, biosecurity, and National Veterinary

Strengthen . FAO has a close partnership with Ministry of Agriculture and helps them to coordinate donors and partner agencies which addressed surveillance, outbreak control, and prevention across the vast and complex HPAI virus-poultry-environment system: village poultry populations, commercial poultry populations (both large- and small-scale), the poultry marketing system, and waterfowl.

Community Based Avian Influenza Control (CBAIC) Program (2006-2010, total budget USD 26,519,218)

USAID has supported a community based AI control program called the Community Based Avian Influenza Control. The CBAIC Program managed by Development Alternatives Inc. (DAI) supported the Indonesia National Committee on AI Control and Pandemic Preparedness (KOMNAS FBPI) and regional authorities in planning, coordination, and response against AI; worked with local officials, FBOs, NGO, community volunteers, and community organizations to develop API control and prevention plans and promotes behavior change; supported behavior change communications to reduce high risk behavior; and engage in partnerships with private industry and poultry marketing interests to improve AI prevention and control in these very important target groups.

Operational Research in Indonesia for More Effective Control of Highly Pathogenic Avian Influenza (ORI-HPIA) Project (2007-2009, total budget: USD 1,092,712)

The ORI-HPAI program, under a cooperative agreement, was developed to evaluate intervention strategies against HPAI in backyard and small-scale commercial farms by assessing the feasibility of implementing the interventions, and the impact of the interventions on the incidence of HPAI-compatible outbreak events. The project conducted by the International Livestock Research Institute (ILRI) provided an evidence base to inform decision-making on highly pathogenic avian influenza (HPAI) control.

WHO Integrated Surveillance for Avian Influenza (IS-AI) Project (December 2006-December 2010, total budget: USD 2,529,257

This project was launched in 2006 to address the coordination of human and animal surveillance in response to emergence of AI in Indonesia. FAO and MOA established the community approach to improve animal surveillance through participatory disease surveillance and response (PDSR) for avian influenza at district level in all six provinces in Java and also in Bali, Lampung and North Sumatera where poultries density is highest as an effort to get early recognition of animal H5N1 infection in the community. In line with the MOA initiative, the Directorate-General of Disease Control and Environmental Health of the MOH also recognized the need for improvement of human disease surveillance. WHO worked with MOH to develop Integrated Surveillance for Avian Influenza (ISAI) project to increase district level surveillance capacity in coordination with the PDSR program. The aim was to improve the capacity of district public health officers to rapidly detect ILI or suspect human case among high risk people exposed to an outbreak of H5N1 in animal and consequently reduce the incidence, severity and morbidity of human cases. The project was implemented in 9 provinces: North Sumatra, Lampung, Jakarta, Banten, West Java, Central Java, Yogyakarta, East Java & Bali. Since 2010, the project focused its effort in western Java provinces (Jakarta, Banten & West Java), Lampung, Yogyakarta and Bali.

DELIVER Avian Influenza Task Order #2 (2007-2010, total budget USD 3,550,000)

USAID developed a contract for the DELIVER project with John Snow Inc., (JSI) to provide commodities and logistic support globally; and in 2007 this contract was expanded to include API under Task Order #2. The project was established as a field support mechanism and is managed by USAID's API Unit in Washington D.C. Funding for this project comes from USAID's avian influenza supplement funding. In late 2008, USAID tasked JSI to provide assistance for a broad range of activities in Indonesia including: technical assistance in all aspects of logistics, pre-positioning and storing AI commodities, procuring vaccines and cold chain equipment, and assessing and developing the cold chain and logistic networks through the DELIVER Project.

The USAID DELIVER Project provides technical assistance to GOI's National Avian Influenza's Taskforce, KOMNAS-FBPI, to better coordinate pandemic preparedness and response plans, including designing a logistic system and standard operating procedures (SOPs) for managing all of their PPE stockpiles.

Purpose of Evaluation on API Program in Indonesia

The purpose this evaluation is to assess the project performance and its impact from 2009 (since the last program assessment to current). The evaluation will provide insights and important feedback to each of the partners and stakeholders that should assist them to understand both the strengths and areas where technical, administrative and management efforts could be improved. It will also provide evidence and learning for improving USAID/Indonesia program designs, strategies and policies.

This evaluation therefore also will serve:

- To provide information on the impact made by each component of program to prevent and (1) control avian influenza and (2) to strengthen animal and public health systems including relevant issues, sustainability, and cost effectiveness;
- To assess how well the different components worked together and helps to foster a 'One Health approach' and multi-sector engagement
- To determine to what extent the USAID API Program is meeting the objectives and what challenges, weakness, and lessons learned can be drawn from implementation of this program;
- To examine whether implementations of these programs contribute to the goals of the Indonesian governmental (National – districts) policies and programs; and
- To provide recommendations as the basis from which the USAID can better target efforts, particularly in a decreases budget environment, to ensure that our targeted effort can make a big impact.

Audiences and Intended Uses

The audience of the evaluation report will be the USAID/Indonesia Mission, specifically the Health Office Team, the USAID/Washington, CDC Indonesia, Government of Indonesia, and other donors.

This evaluation will provide important feedback and information to each of the partners regarding their technical, administrative and management strengths and weaknesses. USAID/Indonesia will integrate the evaluations recommendations to the future API activities and share lesson learned and best practices especially to

implementing partners the Emerging Pandemic Threats (EPT) program, and share lesson learned with the related stakeholders.

Level of Measurements: Program Component

The main focus of evaluation is: to assess and analyze the individual program components that comprise the USAID/Indonesia API Program and to determine the impact and progress towards the intended program goals, and examine synergy between program components.

Evaluation Questions:

1. To what extent has the program activities made an impact to mitigate the risks of influenza on humans and animals?
2. To what extent has the program activities made an impact to strengthen animal and human health systems in Indonesia?
3. To what extent has the program activity strengthen capacity of the national and sub-national (province and district) government, private sector, community, and other stakeholders?
4. What is the contribution of each project to the overall USAID API program goals?
5. How replicable, adaptable/adoptable, sustainable are the programs/program components?
6. How can the program design, management, and implementation become more efficient, effective and relevant toward achieving program goals?
7. How effective has the collaboration/coordination among the programs been in maximizing efforts and achieving greater results?
8. How can local and national ownership and future commitment to continued implementation of good practices/lesson learned be enhanced?
9. What are the key focus points needed by the country to sustain an effective control effort for AI?

VII. EVALUATION METHODS AND PROCESSES

Method

1. Draw on international and national literatures and related experiences;
2. Review background materials, including previous study(ies) conducted on each program component (if available), and program documentation;
3. Review animal and human surveillance data;
4. Attend a team planning meeting (TPM)
5. Attend a virtual assessment launch meeting. This meeting will provide the platform for the assessment a) to initiate discussions with implementing partners and stakeholders; b) to clarify the purpose and expected outcome of the assessment; c) to ensure that implementing partners and assessment team members are starting from the same frame of reference on the Indonesia situation; and d) to allow for an open and transparent discussion of USAID needs; and
6. Conduct in-depth interviews, focus group discussion, semi-structured discussions, interview selected target(s) of program, meetings.
   Conduct field visits (see attached Annex 1 for detailed proposed schedule):
   i. Jakarta and surrounding areas
   ii. Yogyakarta and surrounding areas
   iii. Bandung
   iv. Solo

v. Cipanas
vi. Tasikmalaya

In achieving the objectives, the evaluation team will have to apply different methods of data collection and analysis, including secondary data review and primary data collection using a combination of qualitative and quantitative methods. The analysis of the collected data/information will done in scientific way in order to provide evidence-based conclusions that are reliable, easily understood, useful, and particularly applicable for USAID/Indonesia.

Process

The evaluation team will have to propose an appropriate evaluation methodology, including sample sizes for both quantitative and qualitative data collection; tools and steps for data collection and analysis, which will be reviewed and agreed by USAID before conducting the evaluation.

The evaluation team will follow sound accounting procedures and be prudent in using the resources of the evaluation. The evaluation team will also follow a participatory and consultative approach ensuring close involvement of the Government, relevant programme partners, and beneficiaries.

The evaluation team will have home-based preparation for reviewing different documents and reports related to the programme and developing the evaluation tools. The team will also have field work to collect relevant data/information through: i) meetings and discussions with relevant stakeholders, and the representatives of the programme partners and beneficiaries; and ii) visiting program sites.

Prior to the start of data collection, the evaluation team will develop and present, for USAID review and approval as part of the work plan, a data analysis plan that details, but not limited to, how focus group interviews (if deemed appropriate for the evaluation) will be transcribed and analysed; what procedures will be used to analyse qualitative data from key informant and other stakeholder interviews; and how the evaluation will weigh and integrate qualitative data from these sources with project performing monitoring records to reach conclusions about the effectiveness and efficiency of the API projects and program.

It is anticipated that the evaluation team would have completed preparation (literature review and development of evaluation tools) prior to the field mission. The team shall use the time during the field mission to collect and analyse data/information and consolidate main findings before conducting the debriefing meeting and final review workshop with stakeholders to present the preliminary results.

The information collected will be analysed by the Evaluation Team to identify correlations and determine the major issues. Data will be disaggregated, where possible, by gender to identify how program inputs are benefiting disadvantaged and advantaged groups.

Interviews and Site-visits

The Evaluation Team will conduct in-depth interviews and focus group discussions, at a minimum, with the following organizations/staff:

- Ministry of Agriculture, Directorate General of Livestock and Animal Health Services, Directorate of Animal Health (DAH) and Campaign Management Unit (CMU), including selected Livestock and Animal Health Services at province and district level
- Ministry of Health, including selected province and district health office
- Selected Provincial and District Government in Indonesia
- Human Health and Animal Health officers at all levels: national, province, district, sub-district and village.
- Laboratory Disease Investigation Centre (DIC) at selected regions
- FAO-ECTAD Indonesia
- WHO
- DAI
- JSI
- Poultry Farmer and Poultry Associations within all sectors in selected provinces.
- Market Manager in selected districts of Province of West Java
- Consumers and poultry vendors in selected market at districts of province of West Java.

Proposed provinces for the site visits are: Jakarta, Banten, West Java, Yogyakarta, and Central Java. The team is expected to visit sites as outlined in the suggested schedule (please see Annex 1)

The Evaluation Team may be accompanied by a staff member from USAID/Indonesia, as appropriate, to observe interviews and field visits. A list of interviewees and key stakeholders will be provided by USAID prior to the assignment's inception.

VIII. COMPOSITION OF EVALUATION TEAM

The areas of technical expertise shall be reflected on the composition of evaluation team to address the technical foci of the project being evaluated:

- Animal and human surveillance and epidemiology on Avian Influenza;
- Working knowledge and experience in laboratory assessment of human and/or animal AI virus;
- Avian Influenza Control and Preventions efforts including (but not limited too):
    - Biosecurity and Cleaning & Disinfection (C&D);
    - Behavior change communication;
    - Public private partnership;
    - Community mobilization and development; and
    - Vaccination program & strategy.
- Global, regional and national expertise
- Economics related to disease and disease control; and
- Working experience in Indonesia

Team Composition

USAID encourages the participation of local experts on evaluation teams. USAID encourages participation of related respective government institutions or other stakeholders in Indonesia when their participation would be beneficial for skill development and not present a conflict of interest or a threat to validity, or their

engagement in the evaluation would help to ensure the use of evaluation results within USAID. All attempts should be made for the team to be comprised of an equal number of male and female members.

The Evaluation Team shall include four technical specialists (two international and two local consultants), one local logistics coordinator and one translator:

- Two International consultants with the following areas of expertise: Avian and Pandemic Influenza and zoonotic disease control (see above) & one of them would serve as a Team Leader. These international consultants will cover areas targeted for evaluation in Indonesia;
- The assessment must include: two local technical experts with an excellent understanding of the Indonesian public health and animal health system and policy as well as USAID or development programs, who are fluent in English and have excellent writing skills, and one translator/logistics support to assist the international consultant during interview and presentation, and to handle the travel related logistics and provide administrative support to the evaluation team members;
- The skills set of the total evaluation team must balance animal and human health expertise.
- The evaluation team should also have adequate expertise in monitoring and evaluation.

IX. TIME FRAME & ESTIMATION LOEs

While in the field, the team is authorized and expected to work a 6-day week. Besides the actual field mission, members of the evaluation team are expected to work from their home based offices and communicate among themselves and with USAID and other stakeholders electronically prior to arriving in the field. The duration of assessment will be no more than **39 days**, potential starting from **late November 2013.** The proposed provinces in Indonesia for the evaluation include: Jakarta, Banten, Yogyakarta/ Central Java, Cipanas, Bandung, and Tasikmalaya.

Estimation LOEs:

- Preparation, desk review, writing of a summary of desk review findings (Team): 5 days.
- Virtual Pre-assessment Meeting with USAID Indonesia, Jakarta, and other preparatory work: 2 Days
- Finalization of Methodology/Work Plans: 2 Days
- Meeting with FAO, WHO, JSI, and SAFE for pre-departure site visit: 1–2 Days.
- Site visits/data collection: 13 days
- Data analysis and Initial Draft of Major Findings and Recommendations: 10 days
- Discussion of Preliminary Findings/Recommendations: 1 Day
- Debriefing with USAID, API partners, and GOI: 1 Day
- International Travel Days: 4

X. DELIVERABLES

Evaluation Design and Work Plan**:** A Work Plan and Evaluation Design for the evaluation shall be completed by the Team prior to departing for the field. The evaluation design will include a detailed evaluation design matrix (including the key questions, the methods and data sources used to address each question), draft questionnaires and other data collection instruments, and known limitations to the

evaluation design and data analysis plan. The final design requires USAID/Indonesia approval. The work plan will include the anticipated schedule and logistical arrangements and delineate the roles and responsibilities of members of the evaluation team.

Virtual Pre-assessment Meeting/Team Planning Meeting: A two-day virtual pre-assessment meeting with USAID and a separate Team Planning Meeting (TPM) will be held. The two international consultants at the outset of the evaluation in order for an in-depth briefing of USAID's evaluation policy and checklist. This time will allow for the evaluation's design, work plan, and methodology. The team planning meeting will be attended by the two international consultants and will include input from local consultants, if possible. Upon the full team's arrival in Jakarta, an additional two-day meeting attended by USAID/Indonesia will allow for the further discussion of the purpose, expectations, and agenda of the assignment with the Evaluation team. In addition, the team will:

- clarify team members' roles and responsibilities
- review and develop final evaluation questions
- review and finalize the assignment timeline and share with USAID Indonesia
- present and discuss data collection and analysis methods, instruments, tools and guidelines
- Review and clarify any logistical and administrative procedures for the assignment.

Methodology Plan: A written methodology and data analysis plan (evaluation design, data analysis steps and detail, and operational work plan will be prepared during the team planning meeting and discussed with USAID prior to implementation. The evaluation will employ mixed methods that are both quantitative and qualitative with data collection and analysis as appropriate for answering the evaluation questions.

List of Interviewees and Schedule: USAID/Indonesia will provide the Evaluation Team with a stakeholder analysis that includes an initial list of interviewees, from which the Evaluation Team can work to create a more comprehensive list. Prior to starting data collection, the Evaluation Team will provide USAID with a list of interviewees and a schedule for conducting the interviews. The Evaluation Team will continue to share updated lists of interviewees and schedules as meetings/interviews take place and informants are added to/deleted from the schedule.

Data collection tools: Prior to starting fieldwork, the Evaluation Team will share the data collection tools with the USAID Evaluation Program Manager for review, feedback and/or discussion and approval.

In-briefing and Mid-term brief with USAID: The Evaluation Team is expected to schedule and facilitate an in-briefing and mid-term briefing with USAID. At the in-brief, the Evaluation Team should have the list of interviewees and schedule prepared, along with the detailed chart mapping out the evaluation through the report drafting, feedback and final submission periods. At the mid-term brief, the Evaluation Team should provide USAID with a comprehensive status update on progress, challenges, and changes in scheduling/timeline.

Discussion of Preliminary Draft Evaluation Report:
The Evaluation Team will submit a preliminary outline following the USAID evaluation checklist and plan to finalize the assessment report to the USAID Evaluation Program Manager, prior to final Mission debriefing.

Debriefing with USAID: The team will present the major findings of the evaluation to USAID Indonesia, respectively, through a PowerPoint presentation after submission of the draft report or outline and plan and before the team's departure from country. The debriefing will include a discussion of achievements and issues as well as recommendations for the future activities designs and implementation. The team will consider USAID comments and revise the draft report accordingly, as appropriate.

Debriefing with Partners: The team will present the major finding of the evaluation to the partners of USAID/Indonesia (as appropriate and as defined by USAID) through a PowerPoint presentation prior to the team's departure from country. The debriefing will include a discussion of achievements and activities *only,* with no recommendations for future program. The team will consider partner comments and revise the draft report accordingly, as appropriate.

Draft evaluation report: A draft report of the findings and recommendations should be submitted to the USAID Evaluation Program Manager prior to the Team's departure from Jakarta. The written report should clearly describe findings and conclusions. Recommendations for future programming will be addressed in a separate internal memo. This report should not exceed 50 pages (for Indonesia) in length (not including appendices, lists of contacts, etc.). The format will include an executive summary, table of contents, glossary, methodology, findings, and conclusions. The report will conform to USAID Evaluation Policy "Criteria to Ensure the Quality of The Evaluation Report".

Draft "future directions" internal Memo: The Evaluation Team will prepare a draft internal USAID memo that focuses on "Future Directions," with recommendations for future project designs. The intent of this memo is to provide USAID/Indonesia with procurement sensitive information that cannot be distributed or shared with implementers or partners.

Data Sets: All data instruments, data sets, presentations, meeting notes and final report for this evaluation will be presented to USAID on three (3) flash drives to the Evaluation Program Manager. All data on the flash drive will be in an unlocked, editable format.

Reporting Guidelines

The report should be a comprehensive analytical evidence-based evaluation report:

- Detail and describe results, effects, constraints, and lessons learned from USAID API partners and other stakeholder-supported activities.
- Identify gaps in API control and pandemic preparedness and prevention, including programmatic, leadership, funding, and geographic gaps.
- Review current USAID-funded programs' goals and objectives and their applicability in the context of host government and other stakeholder objectives and activities, API epidemiology in Indonesia, and the political context within Indonesia.
- Evaluate level of coordination among USAID partners, host governments, and other stakeholders.
- Evaluate level of sustainability/replication/adaptation of USAID-funded activities.
- Provide recommendations and lessons on aspects related to factors that contributed to or hindered: attainment of programme objectives, sustainability of program results, innovation, and replication.

An acceptable report will meet the following requirements as per USAID policy (please see: the USAID Evaluation Policy):

- The evaluation report should represent a thoughtful, well-researched and well organized effort to objectively evaluate what worked in the project, what did not and why.
- The evaluation report should address all evaluation questions included in the scope of work.
- The evaluation report should include the scope of work as an Annex. All modifications to the scope of work, whether in technical requirements, evaluation questions, evaluation team composition, methodology or timeline shall be agreed upon in writing by the USAID Mission.
- Evaluation methodology shall be explained in detail and all tools used in conducting the evaluation such as questionnaires, checklists and discussion guides will be included in an Annex to the final report.
- Evaluation findings will assess outcomes and impacts using gender disaggregated data.
- Limitations to the evaluation shall be disclosed in the report, with particular attention to the limitations associated with the evaluation methodology (selection bias, recall bias, unobservable differences between comparator groups, etc.).
- Evaluation findings should be presented as analysed facts, evidence and data and not based on anecdotes, hearsay or the compilation of people's opinions.
- Findings should be specific, concise and supported by strong quantitative or qualitative evidence.
- Sources of information need to be properly identified and listed in an Annex, including a list of all individuals interviewed.
- Recommendations need to be supported by a specific set of findings. Recommendations should be action-oriented, practical and specific, with defined responsibility for the action.

The annexes to the report shall include:

- The Evaluation Scope of Work
- Any "statements of differences" regarding significant unresolved difference of opinion by funders, implementers, and/or members of the evaluation team
- All tools used in conducting the evaluation, such as questionnaires, checklists, survey instruments, and discussion guides
- Sources of information, properly identified and listed
- Disclosure of conflicts of interest forms for all evaluation team members, either attesting to a lack of conflict of interest or describing existing conflict of interest.

Data Quality Standards

To be useful for performance management and credible for reporting, USAID Mission/Offices and Missions should ensure that the performance data in the PMP for each DO meet five data quality standards (abbreviated VIPRT). When this is not the case, the known data limitations and plans to address them should be documented in the indicator reference sheet in the PMP. Note that the same data quality standards apply to quantitative and qualitative performance data.

a) Validity. Data should clearly and adequately represent the intended result. While proxy data may be used, the DO Team must consider how well the data measure the

intended result. Another key issue is whether data reflect a bias such as interviewer bias, unrepresentative sampling, or transcription bias.

b) Integrity. Data that are collected, analyzed, and reported should have established mechanisms in place to reduce the possibility that they are intentionally manipulated for political or personal reasons. Data integrity is at greatest risk of being compromised during data collection and analysis.

c) Precision. Data should be sufficiently precise to present a fair picture of performance and enable management decision-making at the appropriate levels. One key issue is whether data are at an appropriate level of detail to inform management decisions. A second key issue is what margin of error (the amount of variation normally expected from a given data collection process) is acceptable given the management and resource decisions likely to be affected. In all cases, the margin of error should be less than the intended change, For example, if the margin of error is 10 percent and the data show a change of 5 percent, the USAID Mission/Office will have difficulty determining whether the change was can be attributed to USAID activity or is a function of lack of precision in the data collection and tabulation process. USAID Missions/Offices should be aware that improving the precision of data often has time and financial resource implications.

d) Reliability. Data should reflect stable and consistent data collection processes and analysis methods from over time. The key issue is whether different analysts would come to the same conclusions if the data collection and analysis processes were repeated. USAID Missions/Offices should be confident that progress toward performance targets reflects real changes rather than variations in data collection methods. When data collection and analysis methods change, the PMP should be updated.

e) Timeliness. Data should be timely enough to influence management decision-making at the appropriate levels. One key issue is whether the data are available frequently enough to influence the appropriate level of management decisions. A second key issue is whether data are current enough when they become available.

For further discussion, see USAID Information Quality Guidelines and related material on the Information Quality Act in **ADS 578** and at **http://www.usaid.gov/about_usaid/**.

XI. RELATIONSHIPS AND RESPONSIBILITIES

GH Tech will coordinate and manage the evaluation team and will undertake the following specific responsibilities throughout the assignment:

- Recruit and hire the evaluation team.
- Coordinate logistic arrangements for the consultants, including travel and transportation, country clearance, lodging, and communications.

USAID/Indonesia will provide overall direction to the evaluation team, identify key documents, and assist in facilitating a work plan. USAID/Indonesia will help identify key stakeholders prior to the initiation of field work. The evaluation team is responsible for arranging meetings identified during the course of this evaluation and advising USAID/Indonesia prior to each of those meetings. The Mission is always willing to share local knowledge but the evaluation team is also responsible for arranging over-night accommodations, vehicle rental and drivers as needed for site visits around Indonesia

and to hire as a translator. The evaluation team will be responsible for procuring its own work/office space, computers, internet access, printing, and photocopying. Evaluation team members will be required to make their own payments. USAID/Indonesia and their implementing partner personnel will be made available to the team for consultations regarding sources and technical issues, before and during the evaluation process.

XII. BUREAU CONTACT PERSON

Point of Contact Name: Kendra Chittenden
Title: Senior Infectious Diseases Advisor
USAID/Bureau: USAID/Indonesia
Email: kchittenden@usaid.gov
Phone 62-21-3435-9323

XIII. COST ESTIMATE

GH Tech will provide a cost estimate for this activity

ANNEX II. DATA COLLECTION INSTRUMENTS

In-Depth Evaluation Questionnaire
For Implementing Partner Administrators (FAO, DAI, WHO, JSI, ILRI, GOI)

Executive Interviews

Your name
Organization
Position
Location of interview
Interviewer

Introduction: Thank you for taking the time to meet with us today. We are _____, _____ and _____. We are part of an independent team contracted by GH Tech that is conducting an evaluation of the USAID funded avian and pandemic influenza projects in Indonesia. These projects have been implemented in collaboration with the Government of Indonesia by partners such as FAO, WHO, DAI and JSI. As part of this study, we are interviewing key stakeholders, such as yourself, who are responsible for overseeing or implementing this/these project(s). We anticipate this interview will take approximately 1 hour. We will be asking a series of questions, and your responses will assist us in evaluating the impact this/these project(s) has/have had in improving the collaboration across sectors including the Government of Indonesia and private sector in the prevention and control of influenza in poultry and humans.

Q 1. In your opinion, what have been **the greatest successes of these projects**? *SOW EQ 5*
FAO:

DAI:

WHO:

JSI:

ILRI:

Q 2. What would you say are the **greatest challenges or problems** facing these projects? *SOW EQ 6*
FAO:

DAI:

WHO:

JSI:

ILRI:

Q 3. Now I have a few questions about **the impact or effectiveness of this/these project(s**). Please rate them on a scale of 1 to 4, with 4 being the highest effectiveness and with 1 being low effectiveness. How would you rate these program in . . .		1 Low effectiveness	2 Medium effectiveness	3 High effectiveness	4 Highest effectiveness
Q3a. Working well with local organizations and partners? *SOW EQ 1, 2, 3, 7, 8*	FAO DAI WHO JSI ILRI				
		1	2	3	4
Q3b. Working well with local government organizations? *SOW EQ 1, 2, 3, 7, 8*	FAO DAI WHO JSI ILRI				
		1	2	3	4
Q3c. Strengthening the ways avian influenza is prevented, detected and controlled in Indonesia? *SOW EQ 2, 3*	FAO DAI WHO JSI ILRI				
		1	2	3	4
Q3d. Supporting and strengthening the capacity of the national, provincial, and district governments to respond to disease outbreaks? *SOW EQ 3*	FAO DAI WHO JSI ILRI				
		1	2	3	4
Q3e. Supporting and strengthening the capacity of the private sector community and other stakeholders to respond to disease outbreaks? *SOW EQ 3*	FAO DAI WHO JSI ILRI				
		1	2	3	4

Q 4. Which of the activities or parts of these projects have been the **most successful in helping reduce the risks of poultry and humans becoming sick** with avian influenza? For example, alert village program, PDSR, teaching farms, etc. *SOW EQ 1, 5*

FAO:

DAI:

WHO:

JSI:

ILRI:

Q 5. Now, I have some specific questions about **the collaboration and cooperation between USAID/Indonesia funded avian and pandemic influenza projects and the avian and pandemic influenza projects funded by the government of Indonesia and other donors**. Please rate them on a scale of 1 to 4, with 4 being the highest effort to collaborate and 1 being a low effort to collaborate. How would you rate these program in . . . SOW *EQ7*		1 Low collaboration	2 Medium collaboration	3 High collaboration	4 Highest collaboration
FAO collaboration with	Other USAID implementers? Government of Indonesia? Other International efforts? Private sector efforts?				
DAI collaboration with	Other USAID implementers? Government of Indonesia? Other International efforts? Private sector efforts?				
		1	2	3	4
WHO collaboration with	Other USAID implementers? Government of Indonesia? Other International efforts? Private sector efforts?				
JSI collaboration with	Other USAID implementers? Government of Indonesia? Other International efforts? Private sector efforts?				
		1	2	3	4
ILRI collaboration with	Other USAID implementers? Government of Indonesia? Other International efforts? Private sector efforts?				
		1	2	3	4

Q 6. Which **projects and their related activities do you feel are (or might be) useful as sustainable prevention and control activities in Indonesia,** for Avian Influenza, Pandemic Influenza and other emerging diseases. Please rate them on a scale of one to ten, with ten being most likely to be adopted as a sustainable disease control activity or program, and one being the least likely to be adopted. *SOW EQ 5*

FAO:

DAI:

WHO:

JSI:

ILRI:

Q 7. What other aspects or parts of USAID funded projects, not already mentioned above, do you think could be **adopted as a sustainable** part of disease control activities in Indonesia?
SOW EQ 5

Q 8. What would you do to **improve these projects,** so they might become more efficient and effective? *SOW EQ 6*

FAO:

DAI:

WHO:

JSI:

ILRI:

Q9.What are **the lessons learned** from this/these projects? *SOW EQ 4, 5, 6*

FAO:

DAI:

WHO:

JSI:

ILRI:

Q 10. From your experience, what is the **best way to get a commitment** and achieve ownership at the national and local levels for these lessons learned and best practices? *SOW EQ 8*

FAO:

DAI:

WHO:

JSI:

ILRI:

Q 11. What do think is the **future or next steps** of the avian and pandemic influenza program in Indonesia? (Probe for extent of local ownership) *SOW EQ 8, 9*

Q 12. In your opinion, what are the **most important things that need to be done in Indonesia to control Influenza**? SOW EQ 9

Abbreviated In-Depth Evaluation Questionnaire
For Implementing Partner Administrators (FAO, DAI, WHO, JSI, ILRI, GOI)

Executive Interviews

Q 1. In your opinion, what have been **the greatest successes of these projects**? *SOW EQ 5*
FAO:

DAI:

WHO:

JSI:

ILRI:

Q 2. What would you say are the **greatest challenges or problems** facing these projects? *SOW EQ 6*
FAO:

DAI:

WHO:

JSI:

ILRI:

Q 4. Which of the activities or parts of these projects have been the **most successful in helping reduce the risks of poultry and humans becoming sick** with avian influenza? For example, alert village program, PDSR, teaching farms, etc. *SOW EQ 1, 5*
FAO:

DAI:

WHO:

JSI:

ILRI:

Q 6. Which **projects and their related activities do you feel are (or might be) useful as sustainable prevention and control activities in Indonesia,** for Avian Influenza, Pandemic Influenza and other emerging diseases. Please rate them on a scale of one to ten, with ten being most likely to be adopted as a sustainable disease control activity or program, and one being the least likely to be adopted. *SOW EQ 5*

FAO:

DAI:

WHO:

JSI:

ILRI:

Q 7. What other aspects or parts of USAID funded projects, not already mentioned above, do you think could be **adopted as a sustainable** part of disease control activities in Indonesia? *SOW EQ 5*

Q 8. What would you do to **improve these projects,** so they might become more efficient and effective? *SOW EQ 6*

FAO:

DAI:

WHO:

JSI:

ILRI:

Q9. What are **the lessons learned** from this/these projects? *SOW EQ 4, 5, 6*

FAO:

DAI:

WHO:

JSI:

ILRI:

Q 10. From your experience, what is the **best way to get a commitment** and achieve ownership at the national and local levels for these lessons learned and best practices? *SOW EQ 8*

FAO:

DAI:

WHO:

JSI:

ILRI:

Q 11. What do think is the **future or next steps** of the avian and pandemic influenza program in Indonesia? (Probe for extent of local ownership) *SOW EQ 8, 9*

Q 12. In your opinion, what are the **most important things that need to be done in Indonesia to control Influenza**? SOW EQ 9

Field Evaluation Questionnaire—for Animal Health

Local government and Program Implementers

USAID / Indonesia Project
Activity being evaluated ,
which you are involved in
Today's date
Your name
Organization you work for
Location of your work
Position within your
organization
Your role in your
organization

For all questions, please only refer to the project activity you identified above

Q 1. What changes have taken place in your organization because of the Avian Influenza project activity you are involved with? SOW EQ 1

Q 2. What government and private organizations have successfully collaborated with this AI project activity? SOW EQ 7

Q 3. Which organization(s) have been strengthened because of this AI project activity? SOW EQ 3

Q 4. In your opinion, what have been the greatest accomplishments or successes of this AI project activity? SOW EQ 4

Q 5. What have been the greatest challenges or problems of this AI project control activity? SOW EQ 6

Q 6. What would you do to improve this AI project activity? SOW EQ 6

Q 7. Do you think this AI project activity should or could be a long lasting activity? If yes, what would you suggest happen to make it a long lasting activity? SOW EQ 5, 8

Q 8. In your opinion, what are the main points (things) that need the most attention in order to have an effective and long lasting AI prevention and control program in Indonesia? SOW EQ 9

Q 9. Are you familiar with the" One Health" concept? If yes, what do you think is the definition of One Health and how it applies to your organization's work?
SOW EQ 2, 7

Q 10. If your organization is applying the One Health concept, do you have examples of how it has improved or made more difficult multi-sectorial coordination? SOW EQ 2, 7

Field Evaluation Questionnaire – for animal health

Local beneficiaries

USAID / Indonesia Project
Activity being evaluated
Today's date
Your name
Company/Organization you work for
Location of your work
Position within your company/organization
Your role in the company/organization

For all questions, please only refer to the project activity you identified above

Q 1. What changes have you had to make in your work or organization because of avian influenza? SOW EQ 1

Q 2. What local government or other organizations have collaborated with you in this AI project activity? SOW EQ 7

Q 3. In what ways has your company / organization been strengthened because of this AI project activity? SOW EQ 3

Q 4. In your opinion, what have been the greatest accomplishments or successes of this AI project activity? SOW EQ 4

Q 5. What have been the greatest challenges or problems of this AI project control activity? SOW EQ 6

Q 6. What would you do to improve this AI project activity? SOW EQ 6

Q 7. Do you think this AI project activity should or could be a long lasting activity? If yes, what would you suggest happen to make it a long lasting activity? SOW EQ 5, 8

Q 8. In your opinion, what are the main points (things) that need the most attention in order to have an effective and long lasting AI prevention and control program in Indonesia? SOW EQ 9

Q 9. Are you familiar with the" One Health" concept? If yes, what do you think is the definition of One Health and how it applies to your organization's work?
SOW EQ 2, 7

Q 10. If your organization is applying the One Health concept, do you have examples of how it has improved or made more difficult multi-sectorial coordination? SOW EQ 2, 7

Evaluation Questionnaire—for Beneficiaries-Human Health

General Questionnaires for Beneficiaries
For Partners/Service Providers (Central, Provincial, District Level)

Beneficiary Interviews

Date of Interview
Name of person interviewed
- Position
- Organization
- Organization Location

1) Has your work been affected by the influenza virus including avian influenza? If yes, how?

2) Are you familiar with the USAID avian and pandemic influenza program, which is supporting WHO in Indonesia? If yes, how has WHO supported your work?

3) What support from WHO has helped the most for your work on influenza and acute respiratory infections

4) What challenges do you experience with influenza and acute respiratory infection control? What support do you need to fix/address these challenges?

5) What activities that you have implemented for influenza and acute respiratory infection control are the most useful for long-lasting disease prevention and control?

6) Do you think your work on influenza and acute respiratory infection control has made your community/district more or less able to prevent, detect, and control outbreaks? Why?

7) What do you think is the future or next steps for influenza and/or infectious disease control in Indonesia?

ANNEX III. SOURCES OF INFORMATION

LIST OF PERSONS CONTACTED

USAID

Irene Koek, Director Health Office
Mary Linehan, Infectious Disease Team Leader
Kendra Chittenden, Senior Infectious Disease and Science & Technology Advisor
Artha Camellia, Emerging Infectious Diseases Specialist
Bambang Heryanto, Avian and Pandemic Influenza Specialist
Anita Holidaja, Project Management Assistant

MoA

Dr. Pujiatmoko, Director of Animal Health, DLAHS
Dr. M. Azhar, Coordinator of Rapid Response Unit (RRU), DGLAHS
Dr. Noeri Widowati, International Relations, RRU, DGLAHS
Dr. Etty Wuryaningsih, RRU, DGLAHS
Dr. Nining, RRU, DGLAHS
Dr. Darmono, RRU, DGLAHS
Dr. Nurhayati, RRU, DGLAHS
Dr. Mohammed Syibili, Head of Disease Surveillance, DGLAHS
Dr. Idik Abdullah, Animal Health and Veterinary Public Health, Tasikmalaya District
Dr. Hendra K, District Livestock Services, Tasikmalaya
Dr. Fadjar Sumping Tjatur Rasa, Head of DIC Wates Lab
Mr. Sasongko, Head of Yogyakarta Provincial Agriculture Office
Dr. Endang Finiarti, Head of Animal Health and Public Veterinary Health, Yogyakarta Province
Dr. Tri Wahana Adiwijaya, LDCC, DINAS Animal Health, Yogyakarta Province
Dr. Indriantari, Head of Public Veterinary Health, West Java Province
Dr. Endang Puriyanti, Head of Disease Surveillance, West Java Province
Dr. Sri Hartati, Head of Livestock Division, DKI Jakarta and Laboratory Division
Dr. Weni, Head of District Livestock Services, Solo District
Dr. Awik Purwanti, Head of Animal Health and Public Veterinary Health, Klaten District
Mr. Drajat Purbadi, Head of Animal Health Division, Kulonprogo District

MoH

Dr. Jane Soepardi, Director Child Health
Dr. R. Edi. S, MKM
Dr. H. Andi Muhadir, Director of Vector Borne Disease Control and Zoonosis
Dr. M. Misriyah, Head of Subdirectorate of Zoonosis, ABDC
Dr. Ratna Disari, Subdirectorate of Surveillance
Dr. Nirmal Kandel, Epidemiologist
Mr. Eddy Purwanto, Surveillance and Epidemiology
Ms. Rosmalini, Sub directorate of Surveillance
Mr. Ubaidillah, Disease Surveillance and Epidemiology
Rosmaniar, Coodinator DSO
Dr. Marthan Sitorus, Head of Sub directorate Acute Respiratory Infections
Ms. Regina T. Sidjabat, Subdirectorate Zoonosis

Ms. Ramadona, Subdirectorate Zoonosis
Dr. Vivi Setiawty, NIHRD
Nur Ika Hariastuti, NIHRD
Dr. Herman Kosasih, NIH
Dr. Nyoman Kandun
Dr. Daryanto Chadore, Province Health Officer, Yogyakarta
Ms. Anna, Surveillance and immunization, PHO, Yogyakarta
Dr. Achmad, PHO, Yogyakarta
Ms. Yulie Irene, PHO, Yogyakarta
Andri, DSO Coordinator, Yogyakarta
Tri Wardhani, Healthy Markets, Yogyakarta
Dr. A.S. Willianto, DSO Municipality, Yogyakarta
Susilawati, DSO, Municipality, Yogyakarta
Dewi Irawat, DINAS Health Wonosari
Dr. Daryanto Chadore, Provincial Health Officer, Yogyakarta Province
Dr. A.S. Willianto, Municipal DSO officer, Yogyakarta District
Dewi Irawati, District Health Office, Ganung Kidul District
Ms. Wida, Staff, District Health office, Bantul District
Dr. Yuzar I.B. Ismoeroto, Head of the West Java Provincial Office, Bandung
Ms. Muthiah Umar, District Human Health, Bandung

Ministry for People's Welfare

Dr. Emil Agustiono, Deputy III for Health, Population and Family Planning
Dr. Chabib Afwan, KOMNAS Zoonosis
Dr. Rama Fauzi, KOMNAS Zoonosis

FAO

Dr. James McGrane, Team Leader, ECTAD
Dr. Eric Brum, Chief Technical Advisor
Dr. Luuk Schoonman, Chief Technical Advisor
Dr. Sally Crafter, Senior Technical Advisor
Dr. Ade Sjachrena Lubis, Senior National Technical Advisor
Dr. Nining Hartaningsih, National Laboratory Technical Advisor
Dr. Bimo Wicaksana, National Technical Advisor
Dr. Baso Darmawan, National Technical Advisor
Dr. Farida Camallia Zenal, National Technical Advisor
Dr. Gunawan Budi Utomo, National Technical Advisor
Dr. Erry Setiawan, National Technical Advisor
Mr. Alfred Kompudu, National Technical Officer
Drh. Rajali Yahya, National Technical Advisor

WHO

Dr. Graham Tallis, Program Manager, Disease Surveillance and Epidemiology
Dr. Khanchil Limpakarnjanarat, WHO Representative for Indonesia
Dr. Nirmal Kandel, Epidemiologist
Dr. Marlinggom Silitonga, Surveillance and Epidemiology
Dr. Endang Wulandari, Disease Surveillance and Epidemiology
Dr. Dewi Indriani, Child Health

Dr. Salmet Hidayat, Clinical Management
Mr. Ubaidilliah, Disease Surveillance and Epidemiology
Mr. Hari Handoko, Child Health

JSI / Deliver Indonesia

Mr. Russell Vogel, Country Director, Indonesia

CDC

Ms. Gina Samaan
Dr. Yekti Praptiningsih, CDC-East Jakarta Project

DAI

Mr. Paul Miller, former SAFE Poultry Specialist (now in Arizona)
Mr. Heri Haerudin, PMI Cianjur, SAFE program facilitator

ILRI

Dr. Luuk Schoonaman, former ILRI, now with FAO Indoensia

AIP-EID

Dr. Jonathan Happold, Principal Veterinary Advisor and Team Leader
Dr. John Weaver, Senior Veterinary Advisor

IDP (Indonesian Dutch Partnership)

Mr. Ivo Claassen, Program Manager International Cooperation

Universities

Dr. Cissy B. Kartasasmita, Faculty of Medine, University of Padjadjaran, Bandung

Poultry Industry

Mr. Don P. Utoyo, Coordinator of Forum of the Indonesian Poultry Society
Mr. Iwan Setiawan, Director Nurul Huda Technical School, Ciamis
Mr. Dadang, Farm Manager, Cikaleker Teaching Farm, Tasikmalaya
Mr. Robby Susanto, Layer Farm, Solo
Mr. Eddy Haryanto, Layer Farm, Solo
Mr. Adi Dharma, Layer Farm, Solo
Mr Akoen, Layer farm, Solo

Live Bird Markets

Mr. Kusmiaji, Cipanas
Mr. Sunyata, Head of Semanggi Market Management, Solo
Mr. Sirajuddin, Head of Bonang Market Management. Tanggerang
Dr. Febya, Tangerang District Agriculture and Livestock Services, Tanggerang
Ms. Wina Listiana, Pasar Ramadani, Tangerang City Livestock Services
Mr. Rangga Wiriantho, Pasar Anyar, Tangerang City Livestock Services
Dr. Gunawan, Rawa Kepiting, FAO, East Jakarta

Civil Society Organizations

Ms. Ririn Dewi Wulandari, Aisyiah Organization
Ms. Hj. Muthiah Umar, Coordinator Aisyiah, West Java
Ms. Dewi Ariyani, PMI-Indonesian Red Cross
Mr. Heri Haerudin, PMI Cianjur, SAFE program facilitator

Hospitals

Dr. Edi Sampurno, General and Operational Director, Hasan Sadikin Hospital
Dr. Isti Indiyani M M, Director, Wonosari Hospital
Dr. Prasenohadi, Persahabatan Hospital, East Jakarta

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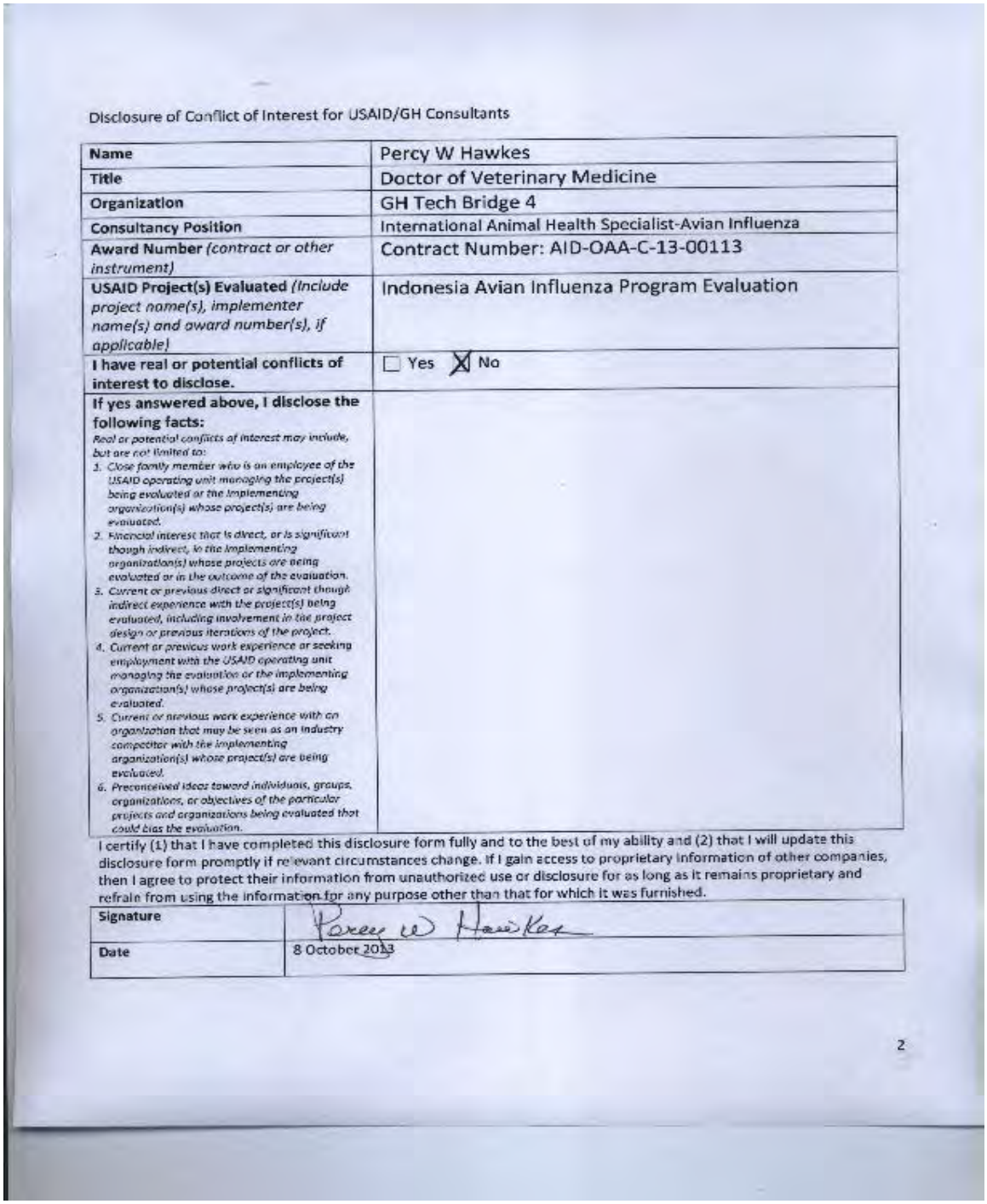
ANNEX IV: CONFLICTS OF INTEREST



Disclosure of Conflict of Interest for USAID/GH Consultants

Name	Percy W Hawkes
Title	Doctor of Veterinary Medicine
Organization	GH Tech Bridge 4
Consultancy Position	International Animal Health Specialist-Avian Influenza
Award Number *(contract or other instrument)*	Contract Number: AID-OAA-C-13-00113
USAID Project(s) Evaluated *(Include project name(s), implementer name(s) and award number(s), if applicable)*	Indonesia Avian Influenza Program Evaluation
I have real or potential conflicts of interest to disclose.	☐ Yes ☒ No
If yes answered above, I disclose the following facts: *Real or potential conflicts of interest may include, but are not limited to:* 1. *Close family member who is an employee of the USAID operating unit managing the project(s) being evaluated or the implementing organization(s) whose project(s) are being evaluated.* 2. *Financial interest that is direct, or is significant though indirect, in the implementing organization(s) whose projects are being evaluated or in the outcome of the evaluation.* 3. *Current or previous direct or significant though indirect experience with the project(s) being evaluated, including involvement in the project design or previous iterations of the project.* 4. *Current or previous work experience or seeking employment with the USAID operating unit managing the evaluation or the implementing organization(s) whose project(s) are being evaluated.* 5. *Current or previous work experience with an organization that may be seen as an industry competitor with the implementing organization(s) whose project(s) are being evaluated.* 6. *Preconceived ideas toward individuals, groups, organizations, or objectives of the particular projects and organizations being evaluated that could bias the evaluation.*	

I certify (1) that I have completed this disclosure form fully and to the best of my ability and (2) that I will update this disclosure form promptly if relevant circumstances change. If I gain access to proprietary information of other companies, then I agree to protect their information from unauthorized use or disclosure for as long as it remains proprietary and refrain from using the information for any purpose other than that for which it was furnished.

Signature	Percy W Hawkes
Date	8 October 2013

2

Disclosure of Conflict of Interest for USAID/GH Consultants

Name	RICARDO ECHALAR
Title	INDEPENDENT CONSULTANT
Organization	GH Tech Bridge 4
Consultancy Position	
Award Number *(contract or other instrument)*	Contract Number: AID-OAA-C-13-00113
USAID Project(s) Evaluated *(include project name(s), implementer name(s) and award number(s), if applicable)*	
I have real or potential conflicts of interest to disclose.	☒ Yes ☐ No
If yes answered above, I disclose the following facts: *Real or potential conflicts of interest may include but are not limited to:* 1. *Close family member who is an employee of the USAID operating unit managing the project(s) being evaluated or the implementing organization(s) whose project(s) are being evaluated* 2. *Financial interest that is direct, or is significant though indirect, in the implementing organization(s) whose projects are being evaluated or in the outcome of the evaluation.* 3. *Current or previous direct or significant though indirect experience with the project(s) being evaluated, including involvement in the project design or previous activities of the project* 4. *Current or previous work experience or seeking employment with the USAID operating unit managing the evaluation or the implementing organization(s) whose project(s) are being evaluated* 5. *Current or previous work experience with an organization that may be seen as an industry competitor with the implementing organization(s) whose project(s) are being evaluated* 6. *Preconceived ideas toward individuals, groups, organizations, or beliefs of the particular projects and organizations being evaluated that could bias the evaluation.*	5) From 2008 – 2012, I worked under the USAID Pandemic Influenza and Other Emerging Threats (PIOET) projects AI.COMM and PREVENT as an employee of FHI 360 (which acquired AED in July 2011). However, my experience under these projects did not include work in Indonesia. I do not believe that based on my work experience I will not be able to effectively evaluate the projects in Indonesia. Should you need a reference you may contact Ms. Marci Van Dyke (mvandyke@usaid.gov) who was a technical advisor that I worked with closely during this time.

I certify (1) that I have completed this disclosure form fully and to the best of my ability and (2) that I will update this disclosure form promptly if relevant circumstances change. If I gain access to proprietary information of other companies, then I agree to protect their information from unauthorized use or disclosure for as long as it remains proprietary and refrain from using the information for any purpose other than that for which it was furnished.

Signature	Ricardo Echalar
Date	December 10, 2013

2

Disclosure of Conflict of Interest for USAID/GH Consultants

Name	Setyawan Budiharta
Title	
Organization	GH Tech Bridge 4
Consultancy Position	Local Animal Health Specialist
Award Number *(contract or other instrument)*	Contract Number: AID-OAA-C-13-00113
USAID Project(s) Evaluated *(Include project name(s), implementer name(s) and award number(s), if applicable)*	B4-009 Indonesia API Program Evaluation
I have real or potential conflicts of interest to disclose.	☐ Yes ☑ No
If yes answered above, I disclose the following facts: *Real or potential conflicts of interest may include, but are not limited to:* *1. Close family member who is an employee of the USAID operating unit managing the project(s) being evaluated or the implementing organization(s) whose project(s) are being evaluated.* *2. Financial interest that is direct, or is significant though indirect, in the implementing organization(s) whose projects are being evaluated or in the outcome of the evaluation.* *3. Current or previous direct or significant though indirect experience with the project(s) being evaluated, including involvement in the project design or previous iterations of the project.* *4. Current or previous work experience or seeking employment with the USAID operating unit managing the evaluation or the implementing organization(s) whose project(s) are being evaluated.* *5. Current or previous work experience with an organization that may be seen as an industry competitor with the implementing organization(s) whose project(s) are being evaluated.* *6. Preconceived ideas toward individuals, groups, organizations, or objectives of the particular projects and organizations being evaluated that could bias the evaluation.*	

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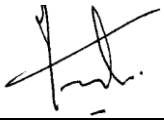
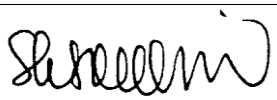
Signature	
Date	10/31/2013

Disclosure of Conflict of Interest for USAID/GH Consultants

Name	Susy Soenarjo
Title	
Organization	GH Tech Bridge 4
Consultancy Position	Local Human Health Specialist
Award Number *(contract or other instrument)*	Contract Number: AID-OAA-C-13-00113
USAID Project(s) Evaluated *(Include project name(s), implementer name(s) and award number(s), if applicable)*	B4-009 Indonesia API Program Evaluation
I have real or potential conflicts of interest to disclose.	☐ Yes ☐ No
If yes answered above, I disclose the following facts: *Real or potential conflicts of interest may include, but are not limited to:* *7. Close family member who is an employee of the USAID operating unit managing the project(s) being evaluated or the implementing organization(s) whose project(s) are being evaluated.* *8. Financial interest that is direct, or is significant though indirect, in the implementing organization(s) whose projects are being evaluated or in the outcome of the evaluation.* *9. Current or previous direct or significant though indirect experience with the project(s) being evaluated, including involvement in the project design or previous iterations of the project.* *10. Current or previous work experience or seeking employment with the USAID operating unit managing the evaluation or the implementing organization(s) whose project(s) are being evaluated.* *11. Current or previous work experience with an organization that may be seen as an industry competitor with the implementing organization(s) whose project(s) are being evaluated.* *12. Preconceived ideas toward individuals, groups, organizations, or objectives of the particular projects and organizations being evaluated that could bias the evaluation.*	

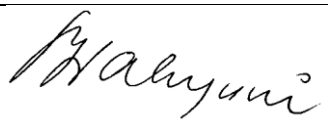
I certify (1) that I have completed this disclosure form fully and to the best of my ability and (2) that I will update this disclosure form promptly if relevant circumstances change. If I gain access to proprietary information of other companies, then I agree to protect their information from unauthorized use or disclosure for as long as it remains proprietary and refrain from using the information for any purpose other than that for which it was furnished.

Signature	
Date	19 October 2013

Disclosure of Conflict of Interest for USAID/GH Consultants

Name	Sri Wahjuni
Title	Local Logistic Coordinator
Organization	GH Tech Bridge 4
Consultancy Position	Jakarta, Indonesia
Award Number *(contract or other instrument)*	Contract Number: AID-OAA-C-13-00113
USAID Project(s) Evaluated *(Include project name(s), implementer name(s) and award number(s), if applicable)*	Indonesian Avian and Pandemic Influenza Program Evaluation
I have real or potential conflicts of interest to disclose.	☐ Yes X **No**
If yes answered above, I disclose the following facts: *Real or potential conflicts of interest may include, but are not limited to:* *13.Close family member who is an employee of the USAID operating unit managing the project(s) being evaluated or the implementing organization(s) whose project(s) are being evaluated.* *14.Financial interest that is direct, or is significant though indirect, in the implementing organization(s) whose projects are being evaluated or in the outcome of the evaluation.* *15.Current or previous direct or significant though indirect experience with the project(s) being evaluated, including involvement in the project design or previous iterations of the project.* *16.Current or previous work experience or seeking employment with the USAID operating unit managing the evaluation or the implementing organization(s) whose project(s) are being evaluated.* *17.Current or previous work experience with an organization that may be seen as an industry competitor with the implementing organization(s) whose project(s) are being evaluated.* *18.Preconceived ideas toward individuals, groups, organizations, or objectives of the particular projects and organizations being evaluated that could bias the evaluation.*	

I certify (1) that I have completed this disclosure form fully and to the best of my ability and (2) that I will update this disclosure form promptly if relevant circumstances change. If I gain access to proprietary information of other companies, then I agree to protect their information from unauthorized use or disclosure for as long as it remains proprietary and refrain from using the information for any purpose other than that for which it was furnished.

Signature	
Date	5 December 2013

Disclosure of Conflict of Interest for USAID/GH Consultants

Name	Yuri Satya Rahman
Title	
Organization	GH Tech Bridge 4
Consultancy Position	Translator
Award Number *(contract or other instrument)*	Contract Number: AID-OAA-C-13-00113
USAID Project(s) Evaluated *(Include project name(s), implementer name(s) and award number(s), if applicable)*	N/A
I have real or potential conflicts of interest to disclose.	☐ Yes ☑ No
If yes answered above, I disclose the following facts: *Real or potential conflicts of interest may include, but are not limited to:* *9.Close family member who is an employee of the USAID operating unit managing the project(s) being evaluated or the implementing organization(s) whose project(s) are being evaluated.* *0.Financial interest that is direct, or is significant though indirect, in the implementing organization(s) whose projects are being evaluated or in the outcome of the evaluation.* *1.Current or previous direct or significant though indirect experience with the project(s) being evaluated, including involvement in the project design or previous iterations of the project.* *2.Current or previous work experience or seeking employment with the USAID operating unit managing the evaluation or the implementing organization(s) whose project(s) are being evaluated.* *3.Current or previous work experience with an organization that may be seen as an industry competitor with the implementing organization(s) whose project(s) are being evaluated.* *4.Preconceived ideas toward individuals, groups, organizations, or objectives of the particular projects and organizations being evaluated that could bias the evaluation.*	

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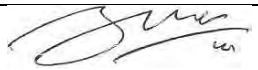
Signature	
Date	11/28/2013

For more information, please visit
http://www.ghtechproject.com/resources

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