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In association with:

Australian Foundation for the Peoples of Asia and the Pacific

Vietnamese Red Cross

Executive Summary

This report presents the major achievements, challenges and solutions, and lessons learned during the four year USAID Avian and Pandemic Influenza Initiative (USAID/APII) covering the period from October 1, 2009 to November 30, 2013.

Highly Pathogenic Avian Influenza (HPAI) H5N1 was first reported from China in 1996 and spread to other parts of Asia causing a serious epidemic in domestic poultry commencing in mid-2003. The disease was first reported in Vietnam in early 2004 and initial attempts at control were based on controlling movement of poultry as well as widespread culling. These policies proved to be ineffective and unsustainable in Vietnam and were replaced with a program of mass vaccinations and local culling with some movement control in the areas where there were outbreaks.

Early in the outbreak it became evident that H5N1 was also a serious zoonotic disease as human cases began to occur. These cases and those in other countries sparked considerable concern on the part of the international community at the prospect of a human pandemic arising from these infections and so international donor support was mobilized to support affected and threatened countries.

The main vehicle to organize the GVN response to H5N1 in Vietnam was the Integrated National Operational Program for Avian and Human Influenza (OPI) 206-2010 also referred to as the Green Book. This plan was prepared in early 2006 and approved by May 2006. This was also the umbrella for prioritizing the Overseas Development Assistance (ODA) that eventually became the API program. The Ministry of Agriculture and Rural Development (MARD) coordinated the animal health response for surveillance, outbreak response, and biosecurity measures, and for poultry industry restructuring activities. The Ministry of Health (MOH) coordinated the human health surveillance and response, working at all levels, from the national to the commune level.

Starting in October 2008, USAID began to focus its Avian and Pandemic Influenza (API) program partners to implement activities in five focus provinces, namely, Hung Yen, Ha Nam, Quang Tri, Can Tho and Kien Giang, as well as at the national level and emphasize the strategic priorities defined through the Joint Strategic Review.

Abt Associates was awarded the three year Avian and Pandemic Influenza Initiative contract in September 2009, which was subsequently extended an additional year in 2012. The project had four major focus areas: human health (10%), coordination (10%) animal health (40%) and behavior change communication (40%). Activities were implemented via subcontracts, as Abt's registration does not accommodate direct implementation. Working in this way required attention to identifying subcontractors capable of delivering quality work on time, and strengthening the capacity of subcontractors as a vital part of USAID/APII's work.

Policy and Coordination. USAID/APII supported central level working groups and worked to coordinate USAID's API partners in order to facilitate the adaption, adoption, replication and scale up of innovative models to reduce risk and mitigate the threat of AI and emerging infectious diseases (EID) in Vietnam.

Activities undertaken included the development of gender awareness training and assistance to USAID with the implementation of their PMP. Advocacy plans were developed in coordination with other API partners, and USAID/APII staff actively participated in the One Health Communications Network (previously the BCC Working Group) and the Biosecurity Working Group. Policy and advocacy activities required support from and close coordination with our international organization partners FAO and WHO to influence policy.

Human Health. USAID/APII addressed human health through three sub-components. The first sub-component was the *Community Based Surveillance (CBS) Model*. The model, which straddles human and animal health, is designed to enable timely detection, reporting and response to animal and human disease events with outbreak potential. The CBS model utilizes a system of village-level collaborators to provide timely grassroots disease information to both animal health and human health personnel at the commune level.

Vietnam maintains official national passive disease surveillance systems for human diseases and animal diseases led by the MOH and MARD, respectively. These surveillance systems are considered the primary national mechanism for detection of emerging diseases including HPAI and human cases of influenza H5N1. Significant investments have been made to strengthen these systems over the past decade. The CBS model was designed to address significant gaps, identified through various reviews of these surveillance systems, namely, inadequate reporting from village to commune level adversely affecting the quality and timeliness of data on suspected human and animal disease events, thereby hampering the GVN's timely response.

Since the beginning of 2010, under USAID/APII, the CBS model has been implemented in 123 communes in 18 districts of five provinces. The original scope of work for the Human Health Surveillance and Animal Health Surveillance component focused on revising (as needed) and implementing and disseminating the CBS model to other donors and provinces.

Considering the achievements during the first three years of the project, and the results of the external evaluations of the CBS model, Human Health Surveillance and Animal Health Surveillance were addressed through separate but complementary activities during Year 4. The scope of work for Human Health surveillance in the final year focused on supporting national and provincial policies that would facilitate community level surveillance as well as replication of the relevant models in new districts within the targeted provinces.

The program contributed to the development of Circular 48 on surveillance by MOH, which includes a clear description of the responsibilities of village Human Health Workers (HHWs) in relation to disease surveillance and reporting, including standardized reporting forms. USAID/APII strengthened animal health passive surveillance system through the establishment and capacity development of the animal health network at the grassroots level and mobilized and trained more than 2,000 commune and village HHWs, animal health workers (AHWs) and other key personnel, who reported suspected disease events from 123 communes across the five targeted provinces.

The USAID/APII CBS model proved effective in enabling early detection and response of HPAI outbreaks in provinces where there is a supportive policy

environment, a high prevalence of outbreaks and willingness to reveal epidemiological data.

Sustainability of surveillance requires adequate resourcing at the local level. The network of AHWs in Quang Tri and the networks of HHWs in all five-project provinces worked well after phasing out of USAID/APII support because they receive ongoing allowances.

The objective of the *Case Management and Infection Control Model (IC)* component was to develop a training package to guide the implementation of the Circular 18, which mandated infection control programs in all health facilities, at grassroots levels.

Infection control is becoming increasingly important as one of the world's leading emerging health issues. The issues are complicated and pose a risk to everyone seeking medical care, putting them at risk for acquiring additional health problems. One of the biggest challenges to implementing Circular 18 is the capacity of available human resources: only 44 to 59 percent of infection control team leaders in health care facilities have been trained on IC. Of those who have been trained, more than 85 percent of them received less than one month's training. Prior to 2012, the MOH did not have any official training materials for healthcare workers in Vietnam's more than 700 district hospitals.

In 2012, the project evaluated the IC model, including cost and cost-benefit evaluations, and finalized the IC training packages. The results were shared with the MOH and the project advocated for the official adoption of the training material for application within the health system at district and commune levels throughout the whole country. The MOH officially approved the training material in 2013, and disseminated it to provincial Departments of Health (DOH) nationwide for application to in-service and pre-service training for healthcare staff. Building on the successful development and MOH adoption of the IC training model in the project's original five focus provinces, the final year's SOW focused on providing coaching and technical support to other provinces, and working with the Vietnam Nurses Association (VNA) and WHO to develop a national infection control network.

While the USAID/APII project had a primary focus on API, taking a broader approach to IC capacity building proved to be more effective and sustainable than an approach focused on a single disease. Gaining the support and commitment from authorities at all levels, including the MOH, provincial DOHs and hospital leaders, proved to be critical to the success of this component. Finding the right balance between a concentrated approach and a comprehensive approach was important. Interventions within healthcare facilities should concentrate on one or two IC issues and practices e.g. hand washing. The timing of interventions within the wider policy and regulatory context supported by MOH was also an important factor to the success of this component. Supporting the implementation of Circular 18 on infection control from the date it was issued was highly effective in developing the model and successfully advocating for its adoption and replication. Choosing to work with VNA proved to be a very positive step for the project and resulted in excellent access to the right people within MOH to champion the USAID/APII IC training model.

The third sub-component in human health was the development of *Pandemic Preparedness Plans*. In the 20th century, three influenza pandemics spread throughout the world, with huge number of cases and deaths as well as substantial economic and other impacts. In June 2009, WHO gave a stage-6 warning, confirming influenza pandemic caused by a novel strain of influenza A (H1N1). At that time, almost all provinces of Vietnam had developed an official pandemic preparedness plan (PPP); however these plans focused only some aspects of pandemic preparedness and response related to the human health sector or the animal health sector.

Experience with actual pandemics as well as best practice PPP shows the importance of having integrated provincial plans that address both the human health and animal health aspects as well as a “whole of society” (WOS) approach, preparedness for non-health impacts and business continuity planning (BCP) for essential services and activities.

In 2009, the Vietnam Red Cross (VNRC) implemented a Humanitarian Pandemic Preparedness (H2P) project together with civil society organizations in Ha Nam and Quang Tri. The Pandemic Preparedness Plan component of USAID/APII aimed to build on this previous USAID-supported activity with VNRC to strengthen an effective model for a comprehensive provincial PPP in Vietnam. This was to be done by developing PPPs in selected pilot province(s), introducing the package in other provinces, and advocating for its wider adoption in Vietnam.

In Year 1, USAID/APII reviewed the status of PPPs in the five focus provinces. In Years 2 and 3, USAID/APII, in close collaboration with WHO continued working with VNRC to develop the PPP in Kien Giang as a model for wider dissemination. In Year 4, the project shared the Kien Giang PPP model and increased the Government of Vietnam’s awareness about WOS preparedness and BCP and the need to enhance provincial PPPs nationally within Vietnam. In Hung Yen the project supported them to apply Kien Giang’s experience and earlier VNRC assistance to revise their PPP and strengthen provincial preparedness, incorporating WOS preparedness and BCP and also apply a One Health approach to integrate human health and animal health preparedness planning.

The commitment of the Provincial People’s Committee and the effective activities of the team of local advisors in charge of revising the plans – the Editorial Team – played an important role in the success of this activity. Successful implementation of the USAID/APII model for provincial PPPs required coordination with around 20 different sectors. This required good planning, support from the overall provincial leaders, and sufficient time and resources for carrying out the necessary activities.

It was noted during implementation that, while developing and maintaining provincial PPPs is something that is an ongoing necessity given the potential and unpredictability of EID outbreaks, in reality during periods of heightened concern over new and emerging diseases there may be more receptiveness or demand from provincial leaders to review and revise their plans. At this time, other provinces are likely to reach out to provinces such as Kien Giang and Hung Yen to learn from their experience. Depending on the evolution of the EID threat this may be too late.

Animal Health. Animal Health activities centered on three sub-components, in addition to the animal health aspects of the CBS model. For the first sub-component, *Animal Health Worker network strengthening*, the objectives were to strengthen the skills and capacity of Animal Health Workers (AHWs) in the animal health system increasing their ability in detect and report cases, while providing better animal services for farmers. The second sub-component was the development and roll out of the USAID/APII *biosecurity training package through Agriculture Extension Workers (AEWs)*.

Vietnam is currently undergoing major livestock production transformations in response to rapidly increasing consumer demand. Increased emphasis on production will require an increased focus on improving existing production and trading practices. Unsafe practices are contributing to the spread of livestock diseases as well as the movement of new pathogens, having a negative impact on productivity and producer livelihoods.

With direct and regular access to farmers, the local AHWs are in the unique position of being able to fight HPAI and other poultry diseases. However, in many rural communities—where there is the greatest risk of AI transmission—AHWs did not have adequate knowledge or resources to fulfill these roles successfully and therefore are often not the first resource villagers turn to regarding animal health issues.

Extensive programs were developed and implemented providing training for over 2000 AHWs. We also partnered with two private sector companies to provide training to all their employees.

As part of the second sub-component, the biosecurity training package for poultry farmers was developed and rolled out through Training of Master Trainers (TOMT) and Training of Farmer Trainers (TOFT) courses for agriculture extension workers supported by USAID/APII. This was followed by diffusion training for farmers through activities integrated into the national and provincial extension programs.

During the final year of the project, the activities under these two sub-components shifted focus to scale up and sustainability. During Year 4 the project undertook a training needs assessment, developed suitable training curriculums, continued to build AHW capacity, encouraged institutionalization of piloted activities, and disseminated the model and moved toward scaling up across the country.

The third sub-component for animal health was *strengthening the poultry supply chain*. Key results and achievements in this area over the four years included the following:

- **Supply Chain Risk Assessment:** Through a subcontract with MARD's Rural Development Center (RUDEC) USAID/APII conducted an initial risk assessment in the five focus provinces.
- **HPAI Risk-reduction Demonstration Models:** The project designed and implemented demonstration models which assisted the beneficiaries and related stakeholders to make step-by-step improvements to sanitation and food safety. These modifications allowed stakeholders to be compliant with relevant government regulations, where available, and to provide a basis for inputs for potential future government regulation where this might be needed.

- Introduction of a Risk-reduction Model for Poultry Supply Chain actors: Using the USAID/APII Risk-reduction Demonstration Models and the STOP AI model as training platforms, USAID/APII introduced its risk-reduction approach widely to local counterparts through nine national and provincial workshops of 450 participants from 25 institutions and 45 provinces.
- Technical Briefs: USAID/APII developed and shared two technical briefs; one on the separation of plucked and live poultry and one on improving food safety by promoting small-scale poultry slaughtering facilities.
- MARD DAH National Proposal on Ensuring Food Safety during Transportation and Slaughtering: USAID/APII supported the development of a proposal which is now ready for submission for government review.
- “Good Manufacturing Practices and Good Hygiene Practices” slaughtering facilities’ guide: USAID/APII developed a guide and handed it over to MARD DAH for consultation and review.
- Risk Reduction and BCC materials: The project developed training materials, as well as training courses, for market vendors, slaughterers and inspectors.

While there are numerous conclusions and lessons learned associated with these models, the more salient ones are: 1) Prioritize infrastructure improvement to reduce the cross contamination; 2) Study tours were successful and well received – visiting upgraded facilities promoted community involvement and developed a mind set for a “need for change;” 3) Food safety and supply chain risk reduction is a long term process that requires high commitment from local authorities and private stakeholders; and 4) It is vital to include all stakeholders early in the process, which can help to mobilization the resources and contributions from the private sector.

Behavior Change Communications. During the first three years of the project, the Behavior Change Communications (BCC) component worked primarily in the project’s five focus provinces. These activities included: 1) Strengthening the capacity and commitment of Government of Vietnam (GVN) and key stakeholder groups at both the national and local levels to plan and manage communication activities on API and other zoonotic threats; 2) Increasing awareness and improving the practice of key API prevention and containment measures for animal and human health workers, local authorities, farmers, supply chain participants, etc.; 3) Increasing the capacity of HHWs, AHWs, AEWs, local authorities, and farmers in communication; and 4) Sharing lessons learned and best practices with policy and technical stakeholders to promote replication and to enhance sustainability.

Building on the achievements of the first three years, during the final year of the project the BCC component had the following activities 1) Continue to roll out the BCC trainers' capacity building model to associations and mass organizations, at national and provincial levels, as well as to other projects, which could then diffuse the training to their own systems; 2) Target neighboring provinces that were invited to the BCC transitional strategy review workshops and assisting them in implementing BCC programs; 3) Advocate for the uptake of the model by reviewing the budget allocation, expenditures, and activities implemented in the five focus provinces with trainers and communications plans, to provide evidence for the model's assistance to the provinces; and 4) Support

provinces where multi-sectorial communications plans have been approved (in summer of 2012) and trainer teams established to submit proposals for funding of communications activities.

USAID/APII's BCC approach highlighted understanding barriers and motivators for change among targeted audiences and incorporated tailored messages to local, risk-based groups while prioritizing changing the behavior of segmented audience groups. These new educational materials have resulted in a more targeted approach to mass communication, away from the centralized system of the past.

One key success of the BCC component was the Transition Strategy. USAID/APII strengthened and transferred program implementation to Vietnamese partners over time – ensuring provincial ownership and leadership, local allocation of resources and integration into local planning cycles. As a result, the Vietnam Farmer's Union (VFU) continues to apply the BCC curriculum and participatory training methods to all 69 Vocational Training Schools and is adapting it to new subjects within these schools. Provinces to continue utilize the available multi-disciplinary BCC trainers and specialist teams to work on other health behaviors in BCC and other communication planning and implementation.

Conclusions. In conclusion the USAID/APII project met the broad objective “to reduce the health risk to humans from avian influenza by controlling the disease at the source in domestic poultry, by detecting and responding promptly to human cases and by preparing for the medical consequences of a human pandemic.” Furthermore, the project successfully developed and shared several models which were adapted and adopted by Vietnamese counterparts for future use in mitigating the effects of EIDs.

USAID/APII also demonstrated the advantages of a coordinated approach to a multi-sectorial problem that engaged both the responsible government agencies as well as other API partners in Vietnam such as FAO, WHO, the Vietnam Red Cross, and other Vietnamese medical and veterinary organizations.

USAID/APII's activities positively contributed to prevention and control of HPAI in Vietnam and created a sustainable impact by building the capacity of numerous government and nongovernmental partners.

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1. Acronyms

Abt	Abt Associates
AEW	Agricultural Extension Worker
AFAP	Australian Foundation for Peoples of Asia and the Pacific
AH	Animal Health
AHW	Animal Health Worker
AIPED	Avian Influenza, Pandemic Preparedness and other Emerging Infectious Diseases (2011-2015)
AMS	Administration of Medical Services
API	Avian and Pandemic Influenza
APII	Avian and Pandemic Influenza Initiative
BCC	Behavior Change Communication
BCP	Business Continuity Plan
CBS	Community-based Surveillance
CCPE	Central Committee for Popularization and Education
CHEC	Center for Health Education and Communication
DAH	Department of Animal Health
DARD	Department of Agriculture and Rural Development
DLP	Department of Livestock Production
DOH	Department of Health
EID	Emerging Infectious Disease
FAO	Food and Agriculture Organization (of the United Nations)
FMD	Foot and Mouth Disease
GVN	Government of Vietnam
GDPM	General Department of Preventive Medicine
H2P	Humanitarian Pandemic Preparedness
HAI	Hospital-acquired Infection
HANSIC	Hanoi Society for Infection Control
HCMC	Ho Chi Minh City
HHW	Human Health Worker
HPAI	Highly Pathogenic Avian Influenza
HUSIC	Hue Infection Control Society
IC	Infection Control
KAP	Knowledge, Attitudes and Practices
LIFSAP	Livestock Competitiveness and Food Safety Project
MARD	Ministry of Agriculture and Rural Development
M&E	Monitoring and Evaluation

MOH	Ministry of Health
MOU	Memorandum of Understanding
NAEC	National Agricultural Extension Centre
NCHEC	National Center for Health Education and Communication
NGO	Non-government Organization
NIHE	National Institute of Hygiene and Epidemiology
OHCN	One Health Communications Network
PAFEC	Provincial Agriculture and Fishery Extension Centre
PAHI	Partnership on Avian and Human Influenza
PCU	Provincial Coordination Unit
PIP	Provincial Implementation Plan
PMP	Performance Monitoring/Management Plan
PPC	Provincial People's Committee
PPP	Pandemic Preparedness Planning
PRRS	Porcine Reproductive and Respiratory Syndrome
RAHO	Regional Animal Health Office
RUDEC	Rural Development Center
SARI	Severe Acute Respiratory Infection
SDAH	Sub-Department of Animal Health
TOFT	Training of Farmer Trainers
TOMT	Training of Master Trainers
TOR	Terms of Reference
TOT	Training of Trainers
USAID	United States Agency for International Development
VAHIP	Vietnam Avian and Human Influenza Control and Preparedness Project
VIPA	Vietnamese Poultry Association
VFU	Vietnam Farmers' Union
VNA	Vietnam Nursing Association
VNRC	Vietnamese Red Cross
VOHUN	Vietnam One Health University Network
VVA	Vietnamese Veterinary Association
WHO	World Health Organization
WOS	Whole of Society

2. Introduction

This report presents the major achievements, challenges and solutions/lessons learned for USAID's Avian and Pandemic Influenza Initiative (USAID/APII) during Year 4, covering the period from October 1, 2009 to November 15 2013.

Starting in October 2009 USAID has been working with USAID Avian and Pandemic Influenza (API) partners to implement activities both at the national level and in five focus provinces, namely, Hung Yen, Han Nam, Quang Tri, Can Tho and Kien Giang, emphasizing the Strategic Priorities defined through the Joint Strategic Review. In September, 2009, Abt Associates was awarded the three year USAID/APII project which began on October 1, 2009 and then was extended an additional year in August 2012. There were four major focus areas: coordination (10%), human health (10%), animal health (40%), and behavior change communication (40%) (BCC), and were originally focused in five project provinces: Ha Nam, Hung Yen, Can Tho, Kien Giang, and Quang Tri. Activities were implemented via subcontracts, as Abt's current license does not accommodate direct implementation. Working in this way required attention to identifying subcontractors capable of delivering quality work on time, and strengthening the capacity of subcontractors as a vital part of USAID/APII's work.

Key project activities focused on in the following areas:

1. Human Health Surveillance
2. Case Management and Infection Control (IC) Capacity Building
3. Pandemic Preparedness
4. Animal Health Surveillance
5. Animal Health Worker (AHW) Capacity Building and Agricultural Extension Worker (AEW) Capacity Building
6. Supply Chain (Poultry Supply Network) Strengthening
7. BCC.

Field implementation of the program evolved over the life of the project. During Years 1-3 of implementation the project had fully functioning field offices located in Quang Tri and Can Tho to facilitate work in the original five project focus provinces. APII staff included project managers in each field office and in Hanoi who liaised directly with provincial representatives. We established Provincial Implementation Plans (PIPs) which were approved by the Provincial People Committees. The PIP was considered an official project document attached to the memorandum of understanding (MOU) with each province, and outlining a framework for project implementation. Provincial Coordinators were engaged full time by both USAID/APII (Can Tho and Hung Yen) and FAO to assist Provincial Coordination Units (PCUs) in each province. The PCUs are chaired by provincial leaders, typically the Vice Chairman of the Provincial Peoples Committee or the Director or Vice Director of the Provincial Department for Agriculture and Rural Development (DARD) and assumed the highest level of ownership and decision-making on project implementation in the province. The PCUs typically met every month to be briefed on the progress implementation and to participate in activity planning and monitoring. Member

representatives were appointed from related organizations responsible for implementing and guiding project activities in the province. To further facilitate this provincial level coordination, initially USAID/APII field offices were located within the DARD buildings in Can Tho and Dong Ha (Quang Tri) while the Project Manager for the northern provinces worked out of the central Hanoi project office.

Each of the first three years, USAID/APII developed a MOU with each of the five focus provinces, as well as associated PIPs. Working closely with the PCUs allowed the project to introduce models and scale them up within the province. Capacity and performance monitoring of the two field offices in Can Tho and Quang Tri helped ensure performance and quality of implementation by partners. Bi-monthly meetings with field staff and Provincial Coordinators provided timely updates on the challenges and progress in each province. The close monitoring by project field staff, Provincial Coordinators, and PCU members provided feedback to project management and PMP data.

During Year 3, the project began shifting its focus to national adoption and scale up of the models. In Year 4, the project shifted completely to use the original five focus provinces as home bases for regional influence and their related successful activity models as demonstration models for sharing with other provincial authorities and counterparts in the regions.

In Year 4, the project took the lessons learned during the first three years and encouraged adoption, adaptation, replication and scaling up of USAID/APII innovations by public and private partners. Project Year 4 saw the project transition its focus fully to adoption and adaptation of key project models, which were previously developed and tested by the project in the five original focus provinces, throughout Vietnam.

This transition is considered the real measure of success for the project. In order to achieve this, the project carried out sustained advocacy and promotional campaigns in close consultation with USAID and API partners. These campaigns achieved very strong results across key components and models developed by the project, particularly in relation to Case Management and IC, AHW and AEW Capacity Building, Supply Chain (Poultry Supply Network) Strengthening and BCC.

What follows is a description and discussion of the main achievements and challenges of project by project component.

2.1. Coordination and Policy Dialogue

2.1.1. Objectives

The overall aim of APII is to develop successful new models and approaches, which are adopted, adapted, replicated and scaled up by public and private partners. Institutional adoption and local ownership of APII's innovative products is considered a key measure of success for the project, and is facilitated through coordination and policy dialogue. Throughout the first three years of project implementation the project supported central level working groups, worked to facilitate coordination among USAID's API partners and identify areas where joint advocacy efforts were necessary to enable adoption and

adaptation of risk mitigation programs. In Year 4, the project aimed to: continue to support central level working groups, for example the biosecurity working group and One Health Communications Network (OHCN), helping to serve as secretariat as needed; Participate in Policy Forums organized by the Partnership on Avian and Human Influenza (PAHI); Continue to identify opportunities to advocate for replication and adoption of APII models, and contribute to the design and implementation of advocacy strategies; Follow-up on the Year 3 training for focus provinces in proposal writing, offering support and technical reviews in their preparation of proposals during Year 4.

2.1.2. Results

Gender training and strategy. Starting the first year, the USAID/APII organized a training course for its staff to identify and integrate gender considerations and issues into project activities. A strategy of gender was developed to mainstream gender throughout training and technical assistance provided to local partners. Gender difference was considered into the process of designing BCC activities including key messages and images. Events and meeting set up were engaged in time and place that both female and male audience could attend.

Monitoring and Evaluation. Monitoring and Evaluation (M&E) training and contributions played a pivotal role in activities and were successful in identifying training materials that were inadequate or poorly understood. Many of the education programs were used in other locations and using M&E techniques we were able to identify issues and correct them as the project matured.

Advocacy Strategy. We developed advocacy strategies that were very beneficial and not difficult to implement, for example separating live bird markets from plucked poultry was not difficult and overall has a significant health implications.

Working Groups. Supported and successfully handed over secretariat duties of the One Health Working Group to PAHI. With the assistance of USAID, PAHI has taken over One Health Working Group and continues to champion this program in conjunction with the Ministry of Agriculture and Rural Development (MARD) and MOH.

2.1.3. What worked and what didn't

Establishing Advocacy Plans in Lieu of a Technical Advisory Group. One of the initial plans to facilitate policy and advocacy efforts of the project was to establish a Technical Advisory Group under MARD. During implementation however, this idea was replaced during Year 1 by operating via/with strategically located partners such as PAHI, FAO and WHO with more immediate access to central level planners and decision-makers, and developing detailed advocacy strategies over time. Beginning in Year 2, the project developed APII's Advocacy Strategy and shared this living document with USAID and APII partners including PAHI. The process helped generate a clearer picture (vision) within the APII team of where the project is heading and what results and outcomes to aim for along the way. In Year 3, employed support from an international expert as Advocacy/Policy Dialogue Advisor to boost project advocacy and communications work.

Participated in and contributed to national working groups. USAID/APII staff participated actively in and contributed to relevant national workshops and technical working groups under PAHI (including the BCC Working Group and the Bio-security Working Group). The USAID/APII revived BCC working group BCC Working Group. Beginning in 2009, together with support from PAHI, and revised the scope of work and facilitate the meeting of the OHCN which was chaired by the National Agriculture Extension Center (NAEC) to disseminate and shared best practices and lessons learned by different project and agencies. The OHCN members also provided inputs into development of Avian Influenza, Pandemic Preparedness and other Emerging Infectious Diseases (AIPED) 2013-2015 and national communication framework 2013-2105. Together with other members of OHCN, the USAID/APII attended all PAHI's facilitated national workshop and meeting and presented *USAID/APII's communications on health and avian influenza through lesson learned from Control and Prevention Programs in Vietnam* in the National Conference on applying a "One Health" approach to infectious disease risks at the human-animal-ecosystem interface in Vietnam.

Staff also regularly participated in Biosecurity Working Group, giving presentations on our lessons learned and the results of animal health and communication work.

Supported adoption of IC training materials. USAID/APII representatives attended, provided technical comments and shared experiences in several national/regional workshops on IC (see Section 1.3 below), and developed the IC training curriculum and IC training which supported the National Action Plan on IC Strengthening at Health Facilities (2013-2015). The Infection Control training materials were adopted as the official standard documents for training in health system in the whole country.

2.1.4. Lessons learned

Throughout the life of the project, USAID/APII was perceived as an NGO by many decision-makers. This increased the challenge of advocacy and emphasized the need for strategic partnerships with API partners (FAO, WHO, PAHI) and other like-minded projects such as the World Bank's Livestock Competitiveness and Food Safety Project (LIFSAP). Advocacy and coordination activities were always only partially under our control and required that partners and target audiences be motivated to collaborate and listen to our inputs.

2.2. Human Health Surveillance and Animal Health Surveillance

2.2.1. Objectives

The USAID/APII Community Based Surveillance (CBS) model's purpose is to enable timely detection, reporting and response to animal and human disease events with outbreak potential. The CBS model utilizes a system of village-level collaborators to provide timely grassroots disease information to commune-level animal health and human health personnel.

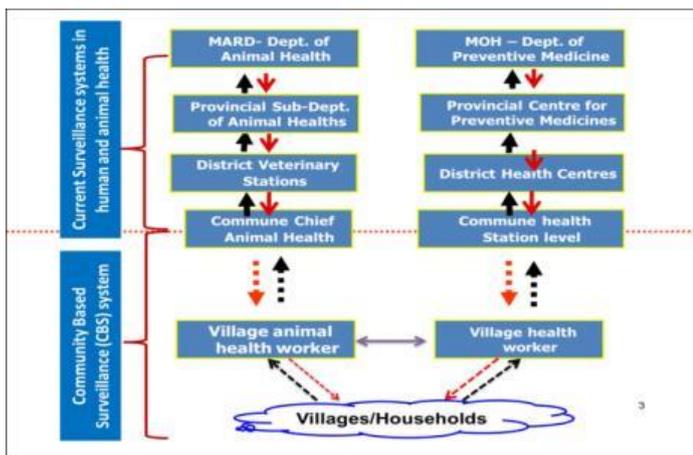
Vietnam maintains an official national passive disease surveillance system for both human diseases and animal diseases led by the Ministry of Health (MOH) and the MARD. These surveillance systems are considered the primary national

mechanism for detection of emerging diseases including highly pathogenic avian influenza and human cases of influenza H5N1. Significant investments have been made in strengthening these systems over the past decade.

Significant gaps, previously identified through various reviews of these surveillance systems were, inadequate reporting from village to commune level adversely affecting the quality and timeliness of data on suspected human and animal disease events. There was inadequate information sharing and collaboration between the human and animal health surveillance systems, to include the local level. For human health surveillance system, there was a lack of clear roles and responsibilities on disease surveillance for village human health workers and also the absence of a standard format for reporting suspected cases. In the animal health surveillance system, the official disease surveillance system focuses on the national, provincial and district levels, with a gap in relation to the roles, resourcing and standard reporting formats for commune, particularly village AHWs.

To bridge the gaps between the two national surveillance systems, a CBS model was developed which included the involvement of the commune and village health workers with the human health system (HHWs) as well as the commune and village AHWs. Normally, the HHW network exists down to village level however many areas throughout the country do not yet have a formally recognized village AHW network that is supported by local authorities to carry out official AHW tasks. The CBS model was originally proposed and piloted in 2007 through USAID’s Avian Influenza (AI) Mekong Initiative, implemented by Abt Associates. This CBS model mobilized groups of volunteers (one volunteer for every 40 households) to monitor and search for suspected disease events in both humans and animals that might be caused by AI. The model was initially piloted in 24 selected communes of Can Tho and Hung Yen.

Figure: Existing national surveillance systems and the CBS model



Since the beginning of 2010, under USAID/APII, the CBS model has been implemented in 123 communes in 18 districts of five provinces. CBS activities included:

- Step 1: Preparation: Needs assessment; expert and local counterpart consultation; site selection; and model introduction to AI partners and national and local experts and counterparts (Year 1).

- Step 2: Model implementation: selection of surveillance collaborators; capacity building (Training of the Trainer (TOT) and diffusion training activities); network launch; and model activation and monitoring (Year 1)
- Step 3: Review implementation process: identified gaps and weakness for adjustment, assessed the model cost and sustainability analysis. Based on the review, the model was adjusted from an AI focus to a focus on AI plus other suspected emerging infectious disease (EID) events (Year 2).
- Step 4: Maintaining and strengthening: this step included building capacity for existing network to expand to other infectious diseases events (Year 2).
- Step 5: Phasing out routine technical support and evaluating the CBS model (year 3).
- Step 6: Finalizing the CBS package, facilitating wider adoption, replicating by provincial/national counterparts and developing partners (Year 3, 4).

The original scope of work for the Human Health Surveillance and Animal Health Surveillance component focused on revising (as needed) and implementing and disseminating the CBS model to other donors and provinces.

Considering the achievements during the first three years of the project and the results of the external evaluations of the CBS model, and adhering to the steps outlined during the final year of the project, the Human Health Surveillance and Animal Health Surveillance were addressed through separate but complementary activities.

The scope of work for Human Health surveillance in the final year focused on:

- i. Support for national/provincial policy that would facilitate community level surveillance and/or event based surveillance; and
- ii. Replication of the relevant model in existing provinces and in new provinces.

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2.2.2. Results

Strengthened Animal Health networks: The USAID/APII activities strengthened the animal health passive surveillance system through the establishment and capacity development of the animal health network at the grassroots level. In Quang Tri province in particular this complemented and strongly supported provincial efforts to strengthen the animal health system as reflected in Decision 25 issued by the Quang Tri People's Committee on the establishment of the animal health network at village level.

Contributed to the development of the MOH's Circular 48 on surveillance, which includes a clear description of the responsibilities of village HHWs in

relation to disease surveillance and reporting, including standardized reporting forms.

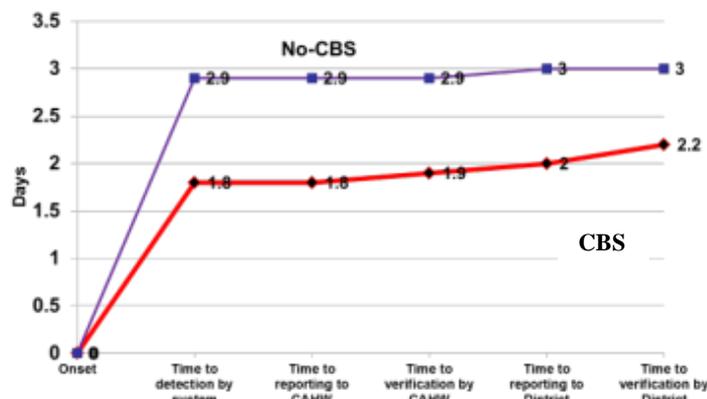
Mobilization and training of more than 2,000 commune and village HHWs, AHWs and other key informants in early detection and reporting of suspected disease events in 123 communes across five provinces.

Surveillance data from 246 monthly surveillance reports from monthly meetings of village collaborators in the five provinces was collected, reviewed and analyzed. Feedback was provided to provincial People's Committees (PPC) and PCUs and their members.

Early detection and timely reporting: The USAID/APII external evaluation of the CBS found that it is useful in enabling timely detection and reporting of animal disease. This was illustrated in Quang Tri, where the system identified multiple events of H5N1, Porcine reproductive and respiratory syndrome (PRRS) and Foot and Mouth Disease (FMD), resulting in timely disease control actions.

The model improves collaboration and information sharing among and between human and AHWs at the grassroots level, and strengthens their relations with local households, contributing to the enhanced understanding of the relationship between animal and human disease events and the timeliness and quality of local information gathering for the national passive disease surveillance systems.

Figure: comparison of detection and verification times for suspected disease events in CBS and non-CBS communes



2.2.3. What worked and what didn't

Model preparation. Building on the earlier work of the USAID/AI-Mekong project, the USAID/APII conducted a rapid assessment on the status of the existing surveillance systems in the three focus provinces (Kien Giang, Quang Tri, Ha Nam), and used the results of the assessment as a basis for implementing the USAID/APII CBS model in the five initial focus provinces of the project. The USAID/APII team worked together with FAO to select the pilot sites through a risk-based approach. A national workshop was held to introduce the CBS model and jointly launch and implement the CBS model in these five focus provinces.

Model implementation. The USAID/APII conducted a five-day TOT course for 20 provincial human health and animal health staff members and completed the rollout training for more than 1,800 collaborators in 123 communes.

CBS launch ceremonies were organized separately in 18 districts with the participation of collaborators, commune and district human health and animal health authorities, the media and local government representatives. Local authorities issued official decisions recognizing the CBS network. Commune loudspeaker broadcasts aired scripts introducing the collaborator network to communities. In addition, CBS toolkits were provided for collaborators to assist them with their work. These toolkits included handbooks, reporting forms, bags, and T-shirts to promote the professionalism and identity of the CBS collaborators.

USAID/APII collected, reviewed and analyzed data pertaining to suspect human and animal disease, which had been reported at the monthly CBS collaborators meetings. Feedback was also given to PPCs and to the USAID/APII PCUs and their members.

Reviewing the process of implementation. In December 2010 the Human Health team conducted a CBS mid-term review in four provinces (Quang Tri, Kien Giang, Can Tho and Hung Yen). The review found that the CBS model contributed to increased sensitivity of surveillance in these locations. From May to December 2010, human collaborators identified 4,936 suspected human disease events and 11,452 suspected animal disease events. The mid-term review also found that local partners appreciated the approach and had assumed new roles and responsibilities. General public awareness also increased and collaborators were being credited for their efforts. The community increased their trust in the collaborators role as effective service providers. Workshops to disseminate the findings of the mid-term review were conducted in the five focus provinces and discussions ensued on how to compile the recommendations for the next phase of CBS interventions. With the agreement of provincial human and animal health counterparts, the project expanded the CBS model from surveillance of suspected AI cases to include a wider scope of surveillance for other potential EIDs.



Image: USAID/APII handbooks and training materials for the CBS collaborators

Maintaining and strengthening. After an advanced TOT course for participants from provincial Preventive Medicine Centers and Sub-Departments of Animal Health (SDAHs), 62 diffusion courses were conducted for more than 2,000 commune health providers, AHWs and Collaborators (HHWs and AHWs at the village level) in all 123 communes. These courses covered training skills, AI and EIDs as well as skills related to identifying EID and AI events. Diseases covered included Highly Pathogenic Avian Influenza (HPAI), Influenza-like illnesses, Dengue Fever, Cholera, Newcastle Disease in chicken, Duck Plague, PRRS or ‘blue ears’ in pigs, and FMD in livestock.

The CBS Handbook for Collaborators was reviewed and updated to include EID surveillance information and revised reporting forms for quick and convenient reporting of suspected disease

events in animals and humans. CBS handbooks and raincoats were distributed to CBS Collaborators.

Phasing out routine technical support and evaluating the CBS model. In October 2011, USAID/APII financial support was discontinued to the CBS networks in Ha Nam, Hung Yen, Can Tho and Kien Giang provinces and steps to hand over the model to provincial and local counterparts to continue managing and supporting the networks as part of their routine work began. During the transition period of the handover, USAID/APII continued to provide technical assistance to the CBS networks in all 123 communes until the end of December 2011. In Quang Tri, the province commenced providing monthly allowances for AHWs from the provincial budget beginning in January 2012. USAID/APII therefore maintained both technical and full financial support to the networks in Quang Tri until the end of 2011 in order not to lose momentum.

All activities were transitioned from USAID/APII to the local authorities. The human health network continues to conduct monthly meetings and collecting village-level information and reporting in accordance with Circular 48 issued by MOH. The sustainability of the human health network is enabled by the monthly allowances provided from government funds to village HHWs. Thanks to the CBS activity; commune and village HHWs are more knowledgeable about the risks to human health posed by zoonotic diseases.

Sustainability of the animal health collaborator network has proved more challenging in areas where village AHWs are not formally recognized and provided with an allowance. In Quang Tri, the decision by the PPC to formally recognize and subsidize the activities of village AHWs in Quang Tri through a monthly allowance has underpinned the ongoing effectiveness and sustainability of the local animal health collaborator networks and these have been expanded throughout the province.

A final CBS evaluation was conducted in three provinces (Hung Yen, Quang Tri and Can Tho). The external evaluation team reviewed epidemiological data, carried out a knowledge, attitudes and practices survey with CBS collaborators, and conducted in-depth interviews of AHWs and HHWs at commune, district and provincial levels and also with households that had experienced disease events. The evaluation identified that the USAID/APII CBS model is effective in enabling early detection and response of HPAI outbreaks in the province where there is a supportive policy environment, a high prevalence of outbreaks and willingness to reveal epidemiological data. Another key factor for the viability of the CBS model is the development and resourcing of AHWs down to village level to complement the HHW network.

Finalizing the CBS package and facilitating its wider adoption and replication. Following the evaluation, the USAID/APII revised and finalized the CBS package in consultation with national experts. The contents of the CBS package include training materials on the CBS model as well as communication and counseling skills, guidelines, handbooks and a policy brief.

Before the animal health network was implemented in whole province following the Decision 25 of PPC, the Quang Tri Livestock Production and Veterinary Association organized a CBS workshop in Quang Tri to share experience, lessons learned and witness the CBS model in action via field visits with non-pilot

districts and communes within Quang Tri. At national level, the USAID/APII hosted an official workshop to share experiences and lessons learned from CBS work in Hue, Vietnam. A large part of the discussion at the Hue meeting focused on the animal health surveillance and the development of village AHW networks. The conditions for human health surveillance were considered to be more positive already, due to the established practice of paying allowances for village HHWs and their inclusion in MOH Circular 48 on the national human health surveillance roles and responsibilities.

Based on the results of the CBS evaluation, in 2013 animal health surveillance activities were integrated with activities on village AHW capacity building. This activity was focused on provinces in central Vietnam in collaboration with MARD DAH's Regional Animal Health Office (RAHO) 3 and USAID/APII's local counterpart in Quang Tri province who shared their experiences with other provinces and representatives from MARD. The USAID/APII models on animal health surveillance, networking and capacity building in Quang Tri were reviewed and shared with RAHO3 and DAH through a regional Technical Dissemination Workshop. A regional TOT course was also conducted for participants from six provinces in central region, with trainers coming from RAHO3 and DAH.

The goal for human health surveillance activities in Year 4 was to support national/provincial policies that facilitate community level surveillance and to replicate the relevant model in both current focus provinces and new provinces. To this end, USAID/APII worked closely with the National Institute of Hygiene and Epidemiology (NIHE) to develop a detailed plan on implementing human health surveillance activities in Year 4. However, after the SOW was basically finalized, the project was informed that the General Department of Preventive Medicine (GDPM) in MOH expected to prepare a separate plan to assess Circular 48 and NIHE and USAID/APII were requested not to conduct activities related to Circular 48 in order to allow time for MOH to prepare this plan. It was therefore necessary to cancel the intended activities and to shift the designated resources elsewhere.

2.2.4. Lessons learned

As noted above, the USAID/APII CBS model proved to be effective in enabling early detection and response of HPAI outbreaks in the province where there is a supportive policy environment, a high prevalence of outbreaks and willingness to reveal epidemiological data.

Sustainability of surveillance requires adequate resourcing at the local level. The network of AHWs in Quang Tri and the networks of HHWs in all five-project provinces worked well after phasing out of USAID/APII support because they receive ongoing allowances. The example of Quang Tri province and the PPC's Decision 25 showed the commitment of Quang Tri authorities to local animal health networks. This provides a good model for enhancing surveillance in parallel with developing stronger local animal health networks through the commitment of provincial and lower level authorities and the veterinary system.

It is recommended that the relevant technical departments of MOH and MARD as well as provincial authorities and technical departments continue to review the experiences of the USAID/APII project and the example of the USAID/APII

CBS model to enhance national human health and animal health passive surveillance systems. It is also recommended that international technical agencies including FAO, WHO, World Organization for Animal Health and US Centers for Disease Control and Prevention, take into account the experiences and lessons from the USAID/APII CBS model in their technical assistance to Vietnam.

An assessment of the cost of implementing the USAID/APII CBS model found that the cost per commune to maintain the CBS program for both human and animal diseases was an average of around USD 1,100 annually, excluding one-off activities like initial training for collaborator networks.

2.3. Case Management and Infection Control (IC) Capacity Building

2.3.1. Objectives

This objective of the Case Management and IC Capacity Building component was to develop a training package to guide the implementation of the Circular 18 in health care facilities at grassroots levels.

As one of the world's leading emerging health issues, IC is becoming increasingly more important. The issues are complicated and pose a risk to everyone seeking medical care, putting them at risk for acquiring additional health problems. For example, the threat of antimicrobial resistance, a pressing issue for the control and prevention of Hospital Acquired Infection (HAI), "is arguably as important as climate change," according to England's Chief Medical Officerⁱ. Studies conducted by the WHO and other international organizations show that from 3.5 to 10 percent of HAIs occur among inpatients. In Vietnam, the MOH conducted cross-sectional studies on HAI in 1998, 2001 and 2005. The study in 2005 showed that out in 19 hospitals the point prevalence of HAI was 5.7 percent, with more than 55 percent of these cases developing pneumoniaⁱⁱ. In 2003, a SARS outbreak occurred mainly in the French Hospital of Hanoi with 63 cases, including five deathsⁱⁱⁱ. In October, 2009, Vietnam's MOH issued Circular 18 which provides guidelines on enhancing infection control in health care facilities. One of the biggest challenges to implementing the Circular is the capacity of available human resources: only 44 to 59 percent of infection control team leaders in health care facilities have been trained on infection control. Of those who have been trained, more than 85 percent of them received less than one month's training. Prior to 2012, the MOH did not have any official training materials for healthcare workers in Vietnam's more than 700 district hospitals.

The original scope of work for the Case Management and IC Capacity Building component and activities during the first three years focused on working primarily in the original five focus provinces to:

- i. Implement formative research to assess the knowledge and practices of human health workers in case management and infection control in selected districts;
- ii. Coordinate with WHO in applying research findings in developing training materials and conducting training for selected districts; and
- iii. Train key participants and stakeholders in case management and infection control.

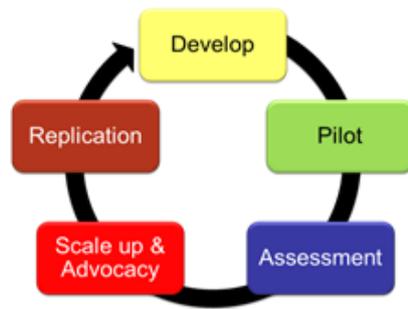
Building on the successful development and MOH adoption of the IC training model during the first three years, during the final year of the project the SOW had the following aims:

- i. Provide coaching and technical support to USAID/APII focus provinces where the approach has been adopted to date, and provide technical assistance, material replication, and TOTs for other provinces as appropriate and according to the MOH's dissemination plan;
- ii. Work with VNA, MCA and WHO, among others, to develop a national infection control network and to program a workshop where all IC training materials being developed for various levels of the health system can be discussed and reviewed;
- iii. Supplement the MOH's roll out by working with the Department of Health (DOH) to disseminate the training materials and support/coach the DOH trainers for dissemination trainings to commune health center and health clinic staff in their respective areas;
- iv. Explore and foster the opportunities for private institutions (nursing schools, etc.) to include APII IC training model in the institutions' curriculum; and
- v. Explore public-private partnership opportunities in implementing IC activities.

2.3.2. Results

Based on experience and materials from the USAID/AI Mekong Initiative on implementing both IC and case management activities at district and commune healthcare settings in Hung Yen and Can Tho, the USAID/APII team developed training materials on IC and case management to support the introduction of Circular 18 to IC specialists and health workers at district- and commune-level facilities in Can Tho and Kien Giang provinces. The training curriculum was further developed through pilot activities in eight district hospitals in the five original USAID/APII focus provinces. In 2012, the project evaluated the IC model, including both the cost and cost-benefit evaluations, and finalized the IC training packages. The results were shared with MOH and the project advocated for the official adoption of the training material for application within the health system at district and commune levels throughout the whole country. MOH officially approved the training material in 2013, and disseminated it to provincial Departments of Health (DOH) nationwide for application on in-service and pre-service training for healthcare staffs. The project supplemented the MOH's roll out by conducting the TOT courses and working with the DOH to disseminate the training in their respective areas. In addition, we explored and fostered the opportunities to include USAID/APII IC training model in medical and nursing schools as part of their pre-service training programs for doctors and nurses.

Figure: Strategic approach for the development of the IC training model



Key results and achievements of the project over the four years included:

- **The MOH officially approved the IC training curriculum and training materials for in-service training courses** with the release of official letter No. 5771/BYT-K2DT dated August 30, 2012.
- **The MOH officially approved the IC practical handbook** with Decision 2289/QD-BYT dated August 09, 2013.
- **Replication of the USAID/APII IC training model in the health system:** Provincial DOHs have been conducting the diffusion training using the USAID/APII IC training material and their own funds. Private hospitals have also been willing to pay for designated IC staff to participate in the training courses. On February 27, 2013 the MOH issued a letter to DOHs in all 63 provinces on provincial plan on IC strengthening at health facilities, including IC training plan. As of July 2013, 37 of out 63 DOHs nationwide had shared their plans with MOH and USAID/APII.
- **Replication of the infection control-training model in medical/nursing schools:** As of now, 21 medical/ nursing schools, including six private schools, have issued Decisions or official letters on adopting the infection control training material. Around 17,000 students of these 21 schools will be trained on IC in the 2013-2014 school year.
- **Improving the quality of hand washing in health care facilities:** Evaluation of the USAID/APII IC activities found that the infection control intervention improved the quality of hand washing in the treatment group of hospitals by 13% compared to non-intervention hospitals.

Figure: District hospitals where the USAID/APII IC training model was piloted

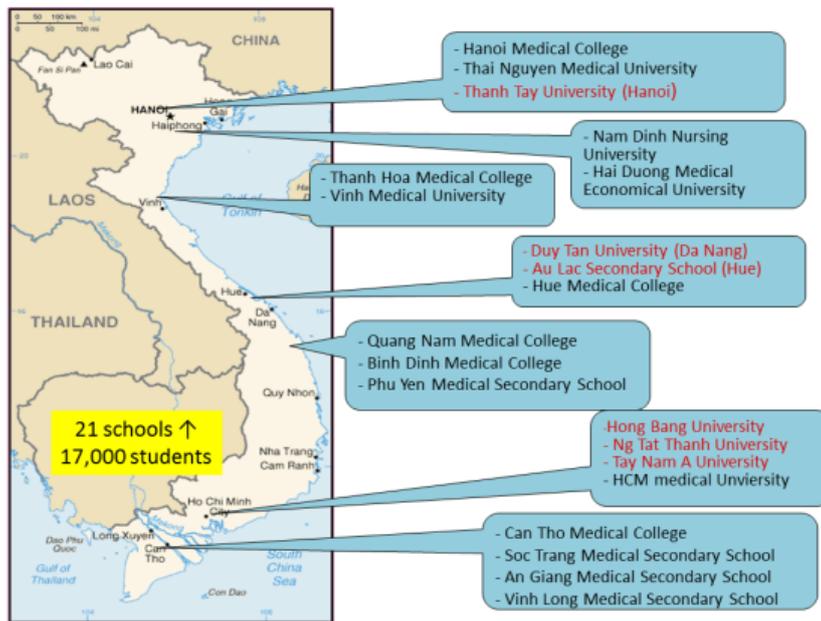
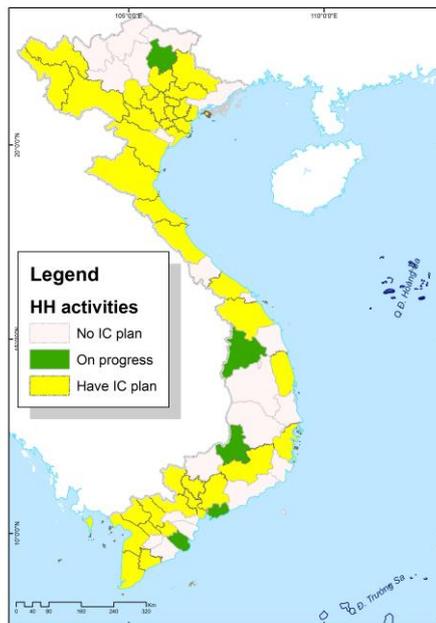


Figure: application of the USAID/APII IC Training model as of July 2013



2.3.3. What worked and what didn't

Developing the USAID/APII IC training material to introduce Circular 18.

The USAID/APII partnered with Johnson and Johnson Medical to organize two workshops to introduce Circular 18 to IC staff in provincial and district hospitals in Can Tho and Kien Giang in 2010. Following this, the USAID/APII developed the USAID/APII IC training material for district- and commune-level facilities and conducted some courses on IC for 419 health staff in Can Tho and Kien Giang: two courses for IC network members at districts level, eight courses for health staff at district level and four courses for health staff at commune level.

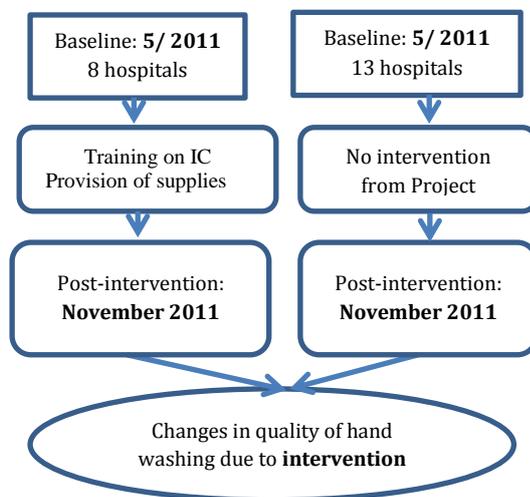
Training on Severe Acute Respiratory Infections and Avian Influenza case management. The USAID/APII conducted a TOT course on Severe Acute Respiratory Infection (SARI) and AI case management for 18 participants from DOHs in the original five USAID/APII focus provinces in 2010. After attending the TOT course, the provincial DOH staffs conducted 16 follow-up training courses on case management in five provinces for about 480 commune health workers. These training courses provided attendees with basic knowledge and skills regarding SARI and AI case management and provided healthcare workers with an opportunity to practice case management and referral protocols.

Applying the USAID/APII IC model in eight pilot district hospitals. The USAID/APII IC model primarily focuses on the application of the IC training materials developed by USAID/APII for use by district and commune healthcare facilities. The USAID/APII applied this model in eight pilot district hospitals in five provinces: Duy Tien (Ha Nam), Khoai Chau and Tien Lu (Hung Yen), Hai Lang and Gio Linh (Quang Tri), Thoi Lai (Can Tho), and Tan Hiep and Go Quao (Kien Giang).

The following activities were carried out as part of the application of the USAID/APII IC model in the eight pilot facilities:

- A TOT course was conducted for health staff from five DOHs and eight district hospitals and follow up diffusion training for all health care workers in pilot hospitals;
- IC systems were formed and/or reinforced within each facility, with clear assignment of roles and responsibilities;
- Hand washing materials were provided and promoted through education on hand washing for doctors, nurses and caregivers;
- Hospital regulations on proper infection control were developed/updated; and
- The activities of IC monitoring teams in the hospitals were strengthened, including regular meetings to review and discuss emerging and pending issues in infection control in each hospital.

Figure: Test and control groups for the review of the IC intervention in district healthcare facilities



Evaluating the USAID/APII IC model. Cost analysis of the USAID/APII IC model showed that the cost of maintaining the IC intervention is around VND 84 million (equivalent to USD 4,000) per hospital per year. This cost covers all staff training on IC as well as IC supplies including soaps and sterilization chemicals, hand-washing posters hung in critical spots, regular monitoring of hand washing, regular meetings among IC teams and committee and periodical updating of regulations and procedures.

The IC program cost-benefit analysis indicated that the IC intervention improved the quality of hand washing in the treatment group of hospitals by 13 percent compared to non-intervention hospitals in the same provinces (statistically significant at a one percent level of confidence).

Scaling up and advocacy for MOH's official approval of the USAID/APII IC training package. The project shared with the MOH the IC training package and the results of the pilot activities, including a cost-benefit assessment, and advocated for the official adoption of the training materials. Three regional review workshops for this activity were held in March and April 2012. The training curriculum, training material and IC practical handbook were revised and reviewed by the MOH, including by a scientific review board compiled by the MOH. During the review process, the target of the IC training package was expanded to cover all health facilities at grassroots level, including around 700 district hospitals, 10,000 commune health centers and several public/private clinics.

The MOH officially approved the IC training curriculum and training materials for in-service training courses with the release of official letter No 5771/BYT-K2ĐT dated August 30, 2012. They are the first comprehensive IC training curriculum and material in Vietnam, issued by the MOH and sent to all 63 provincial DOHs and medical education centers for replication. The IC practical handbook was official approved with Decision 2289/QĐ-BYT dated August 09, 2013.

Expanding the model to healthcare facilities throughout Vietnam. On March 30, 2012, MOH issued Decision No. 1,014 on approval of the *National Action Plan on Strengthening Infection Control in Health Care Facilities by 2015*. One of the objectives of the national plan is to train at least 80 percent of healthcare workers in healthcare facilities on basic infection control by 2015. The IC training package developed with USAID/APII support is an official standard document for training for the health system nationwide.

In 2012, the USAID/APII began to develop the required group of trainers to deliver this training throughout the country. Three six-day regional TOT courses covering 75 participants from 12 provinces were organized. In 2013, three additional regional IC TOT courses were organized in Hanoi, Hue and Ho Chi Minh City for about 60 participants from 17 new provinces, increasing the pool of qualified trainers and promoting awareness of the training materials with provincial DOH. The USAID/APII has provided around 6,000 printed copies of the IC materials and 2,500 copies of the curriculum, as well as technical assistance for development and implementation of provincial plans on IC.

As of July 2013, 37 out of 63 provincial DOH shared their plan on IC strengthening at health facilities, including their IC training plan, with MOH and

USAID/APII. Some provinces conducted the provincial TOT courses using APII IC training material and their own funds such as Binh Dinh, Can Tho, Dong Thap, Ho Chi Minh City, Lam Dong, Nghe An, Quang Nam, Hai Duong, Thanh Hoa, Thua Thien Hue, Kien Giang, Ha Noi and Da Nang. After attending the provincial TOT course, the trainers will organize the diffusion training on IC for all health workers in their health facilities. The results of some provincial TOT courses in 2013 are shown in the table below.

Table: Results of some provincial TOT courses on IC in 2013

Province	# of Courses	# of provincial-level facilities	# of district-level facilities	# of private hospitals	# of participants
Binh Dinh	2	9	11	1	50
Can Tho	4	9	9	3	140
Dong Thap	1	8	8	0	120
Ho Chi Minh	4	33	91	34	298
Lam Dong	3	5	12	0	60
Nghe An	2	14	19	2	60
Quang Nam	3	12	20	3	90
Totals	19	90	170	43	818

Integrating the USAID/APII IC training package into medical and nursing school pre-service training programs. Prior to 2012, there was not any official IC training material for medical or nursing schools in Vietnam. The USAID/APII has been working closely with the Vietnam Nursing Association (VNA) to encourage the integration of IC training model in to training institutions. There were 39 teachers from 19 schools that attended the TOT courses on IC in 2012 and 2013. Following the training courses, these institutions are adopting and adapting the USAID/APII IC training materials for use within the training programs of their institutions. The project has also provided specific technical support for two institutions to develop their lesson plans.

The USAID/APII conducted a one-day national workshop on strengthening IC training for 45 participants from 18 medical and nursing schools as well as officials from MOH, the Ministry of Defense and WHO on the IC training situation in medical and nursing schools and how these partners could introduce, discuss and review the IC training materials and lesson plans at these institutions. The project also supported the printing and dissemination of MOH's approved infection control training materials to medical and nursing universities, colleges and secondary schools throughout the country. As of now, 21 medical and nursing schools have issued decisions or official letters adopting the USAID/APII IC training materials.

2.3.4. Lessons learned

Several key lessons were learned including the following:

- While the USAID/APII project had a primary focus on API, taking a broader approach to IC capacity building proved to be more effective and sustainable than an approach focused on a single disease.
- Gaining the support and commitment from authorities at all levels, including MOH, provincial DOHs and hospital leaders, proved to be critical to the success of this component.
- Finding the right balance between a concentrated approach and a comprehensive approach was important. Interventions in healthcare facilities with limited resources should concentrate on one or a few IC issues and practices (e.g. hand washing) however this should be done within a more comprehensive perspective taking into account the overall IC system within the facility and different related aspects including training, provision of supplies, regulations and guidelines, practices and monitoring and assessment.
- The timing of interventions within the wider policy and regulatory context supported by MOH was also an important factor to the success of this component. Supporting the implementation of MOH's Circular 18 on infection control right from when it was first issued was a timely point of entry for the project and created a highly effective context for developing the model and successfully advocating for its adoption and replication. Similarly, it was important to work with the right subcontractors and partners. Moving away from the Societies for Infection Control to work with VNA proved to be a very positive step for the project and resulted in excellent access to the right people within MOH to champion the USAID/APII IC training model.
- An approach of turning "Threats" into "Opportunities" also proved important. The large number of meetings and workshops on IC that took place during 2012 required a lot of time and attention from both USAID/APII and VNA staff. Organizing these meetings caused some delays, however these delays were turned into opportunities for USAID/APII to share the IC training model with in-service and pre-service medical and nursing education systems.

2.4. Pandemic Preparedness

2.4.1. Objectives

In the 20th century, three influenza pandemics spread throughout the world, with huge number of cases and deaths as well as substantial economic and other impacts. In June 2009, WHO gave a stage-6 warning, confirming influenza pandemic caused by a novel strain of influenza A – H1N1. At that time, almost all provinces of Vietnam had developed an official pandemic preparedness plan (PPP); however these plans focused only some aspects of pandemic preparedness and response related to the human health sector or the animal health sector.

Experience with actual pandemics as well as best practice PPP shows the importance of having integrated provincial plans that address both the human

health and animal health aspects as well as a “whole of society” (WOS) approach, preparedness for non-health impacts and business continuity planning (BCP) for essential services and activities.

In 2009, the Vietnam Red Cross (VNRC) implemented a Humanitarian Pandemic Preparedness (H2P) project together with civil society organizations in Ha Nam and Quang Tri, with support from USAID. The Pandemic Preparedness component of the USAID/APII aimed to build on the previous USAID-supported activity with VNRC to strengthen an effective model for a comprehensive provincial PPP in Vietnam, by developing PPPs in selected pilot province(s), introducing the package in other provinces, and advocating for its wider adoption in Vietnam.

The original Scope of Work for the Pandemic Preparedness component focused on the following two activities:

- i. With WHO and others, develop, test and revise multispectral district PPP(s);
- ii. Train stakeholders and local authorities in pandemic preparedness planning and response.

Based on the results from the previous years, during the final year of the project the Scope of Work for the Pandemic Preparedness component was to:

- i. Work with national and provincial authorities where appropriate in collaboration with USAID and API partners to revise and implement (where possible) their existing PPPs to incorporate the "one health" and "WOS" approaches.

2.4.2. Results

In Year 1, the USAID/APII reviewed the status of PPPs in the five focus provinces. In Years 2 and 3, USAID/APII in close collaboration with WHO continued working with VNRC in order to develop the PPP in Kien Giang as a model for wider dissemination. In Year 4, the project shared the Kien Giang PPP model and increased The Government of Vietnam’s (GVN) awareness about WOS preparedness and BCP and the need to enhance provincial PPPs nationally. To accomplish this we worked with a new province, Hung Yen, to support them to apply the experience from Kien Giang and the VNRC’s earlier assistance to revise their PPP and strengthen provincial preparedness, incorporating WOS preparedness and BCP and also applying a One Health approach to integrate human health and animal health preparedness planning.

Key results and achievements of the project over the four years included:

- Multi-sector PPP situation analyses;
- A model for developing an effective, comprehensive provincial PPP;
- A revised and enhanced training material on PPP for community leaders. With this training material, 250 community leaders in five provinces were trained on PPP.
- A tabletop exercise in Kien Giang

- Two provincial PPPs reviewed and revised applying a WOS approach, integrating BCP and “One Health” aspects. Both of plans were approved by the respective provincial People Committees and implemented.
- A dissemination workshop in Hanoi for 13 provinces to introduce the USAID/APII model for provincial PPPs.

2.4.3. What worked and what didn't

The model for developing a provincial PPP was introduced and tested in two provinces, Kien Giang and Hung Yen. Key elements of USAID/APII’s PPP model being applied in the two provinces include:

- Step 1: Preparation. Meeting with relevant provincial organizations to identify and promote the support from provincial technical organizations. Subcontracting with an appropriate organization.
- Step 2: Conducting a PPP introduction workshop to share experiences and gain the commitment from the PPC and related institutions on PPP revision. During this step, a detailed plan of PPP activities is introduced and approved by all participants in the workshop.
- Step 3: Conducting a PPP training course for all provincial sectors and mass organization. The new approach and PPP outline should be introduced and approved.
- Step 4: Two PPP review workshop are conducted to compile the inputs and recommendations from all sectors, mass organizations, national and international organizations for the draft PPP.
- Step 5: Depend on the available resources, an exercise to test and gather the lessons learned can be conducted to collect further inputs to strengthen the draft PPP.
- Step 6: The provincial PPP is finalized and submitted to the PPC for approval

The training material on PPP for community leaders was finalized with inputs from WHO. The training materials focus on three main topics: concepts of influenza and pandemic response, community planning for pandemic preparedness, and BCP and livelihood maintenance plans during the difference phases of a pandemic. Ten PPP training courses for approximately 250 community leaders were organized by VNRC in Ha Nam, Hung Yen, Quang Tri, Kien Giang and Can Tho provinces. The training provided basic knowledge for community leaders on pandemic influenza and community preparedness for pandemics (including topics such as health system preparedness, livelihoods, provision of essential services and business continuity planning, etc.).

In May 2012, the Kien Giang PPC chaired a tabletop exercise with the participation of more than 60 representatives from agencies including provincial departments, military agencies, police, media agencies and mass organizations from Kien Giang as well as representatives from other provinces and from MOH, VNRC and USAID. Comments from the tabletop exercise were incorporated into the draft PPP prior to submission for approval by the PPC of Kien Giang province.

A national dissemination workshop was conducted to introduce new approaches for developing and revising PPPs, to share experiences from the process of developing and improving Kien Giang's provincial plan, and to identify general recommendations for improving provincial plans. Participants in the workshop included VNRC, DAH, GDPM, the Central Propaganda Department and Committee, the Ho Chi Minh Institute of Hygiene and Public Health, Vietnam Avian and Human Influenza Control and Preparedness Project (VAHIP), FAO, WHO, PAHI, APII and USAID, as well as representatives from 13 provinces including Hung Yen, Ninh Binh, Bac Ninh, Bac Giang, Hai Phong, Hoa Binh, Ha Tinh, Nam Dinh, Bac Kan, Thanh Hoa, Ha Nam, Quang Tri and Kien Giang. After the workshop, USAID/APII worked with Hung Yen province to support the revision of their provincial PPP in line with the USAID/APII model.

2.4.4. Lessons learned

Several lessons were learned in the process of implementing this component, as follow:

- The commitment of the PPC and the effective activities of the Editorial Team, the group of community advisors who revised the PPP according to local inputs, played an important role in the success of this activity.
- Successful implementation of the USAID/APII model for provincial PPPs requires coordination with around 20 different sectors. This requires good planning, support from the overall provincial leaders, and sufficient time and resources for carrying out the necessary activities.
- It was noted during implementation that, while developing and maintaining provincial PPPs is something that is an ongoing necessity given the potential and unpredictability of EID outbreaks, in reality during periods of heightened concern over new and emerging diseases there may be more receptiveness or demand from provincial leaders to review and revise their plans. At this time, other provinces are likely to reach out to provinces such as Kien Giang and Hung Yen to learn from their experience. However, depending on the evolution of the EID threat this may be too late.

2.5. Animal Health Worker (AHW) Capacity Building and Agricultural Extension Worker (AEW) Capacity Building

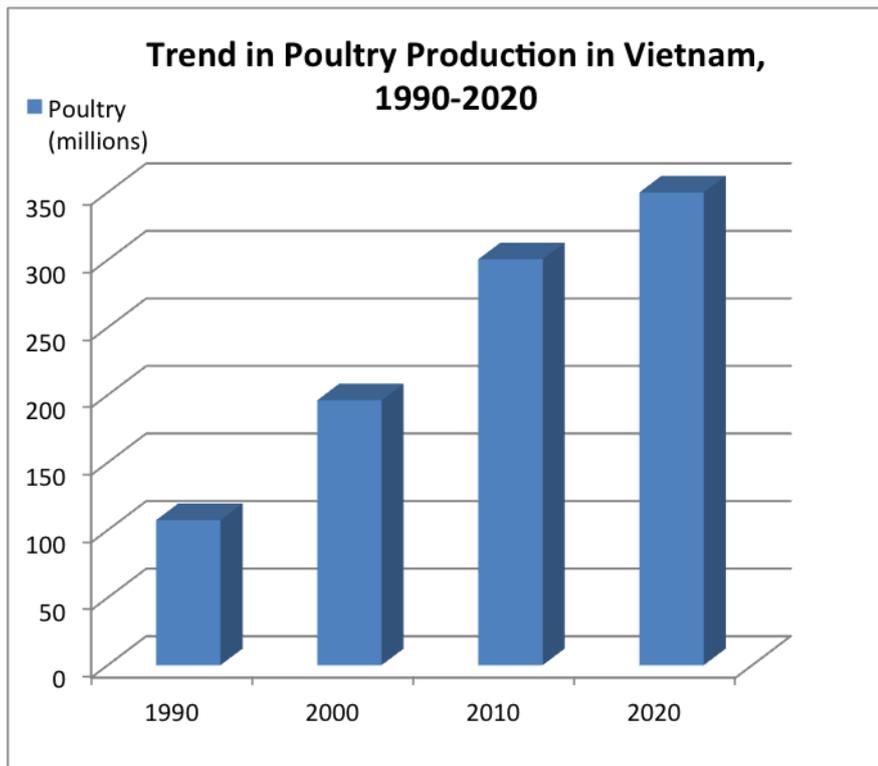
2.5.1. Objectives

The overall objective of strengthening the skills and capacity of AHWs in the animal health system was to increase their ability in detecting, case reporting, and providing better animal services to farmers.

Vietnam is currently undergoing major livestock production transformations in response to rapidly increasing consumer demand. For example, meat production is projected to increase from 3,200 tons in 2010 (68% pork, 27% poultry and 3% beef) to 5,500 tons by the year 2020 (63% pork, 32% poultry and 4% beef) according to the Department of Livestock Production (DLP). Increased emphasis on production will require an increased focus on improving existing production and trading practices. Unsafe practices are contributing to the spread of livestock diseases as well as the movement of new pathogens, having a negative impact on

productivity and producer livelihoods. This poses serious public health risks related to food safety and the spread of influenza and other zoonotic diseases.

Figure: Trend in poultry production in Vietnam, 1990-2020



Source: MARD DLP, 2010

Experts have shown that one of the best methods to prevent AI is:

- Applying preventive measures and diminish potential risk of AI and other poultry diseases' transmission; and
- Catching suspected cases early in order to control the spread of AI infection entering the environment and to a larger group.

With direct and regular access to farmers, the local AHWs are in the unique position of being able to make the fight against AI and other poultry diseases most effective in Vietnam. The local AHWs, including village and commune levels, are ones who can disseminate important messages about safe animal husbandry practices and regularly collect information about the health status of poultry, including possible outbreaks and help make AI surveillance more sensitive, proactive, and efficient.

However, in many rural communities—where there is the greatest risk of AI transmission—AHWs do not have adequate knowledge or resources to fulfill these roles successfully and therefore are often not the first resource villager's turn to regarding animal health issues. This lack of skill and credibility significantly diminishes their ability to serve as effective channels of communication and surveillance agents on the frontlines.

To that end, one of the key components of the APII focused on strengthening the skills and capacity of AHWs to increase their technical knowledge about key veterinary topics, including the signs and prevention of avian influenza.

The goals of the AHW Capacity Building and AEW Biosecurity Training activities were to:

- Develop an AHW training package and introduce it to new provinces and seek other educational training opportunities
- Test and introduce the AHW networking model for adoption by relevant public-private agencies at national and local levels.
- Develop and introduce the AEW training materials to the NAEC, new Provincial Agriculture and Fishery Extension Centers (PAFEC) and private sector to applying them throughout AEW system.

The overall objective of strengthening the skills and capacity of AHWs in the animal health system was to increase their ability in detecting, case reporting, and providing better animal services to farmers.

For AEW capacity building and Biosecurity, the overall objective was to develop and introduce a practical tool for extension workers to facilitate the farmer training and to increase basic knowledge on biosecurity and good practice at small commercial farm for poultry producers.

The original scope of work for the AHW Capacity Building and AEW Capacity Building component during the first three years focused on working primarily in the original five focus provinces to:

- i. Conduct training needs assessments in select provinces;
- ii. Adapt and refine relevant training modules, with appropriate technical input from FAO and others;
- iii. Train AHWs and AEWs in animal disease prevention and response, emphasizing API;
- iv. Build sustainable networks and linkages among stakeholders, such as district officers and paravets;
- v. Train village AHWs in animal disease focusing on API prevention and control.
- vi. Train AHWs, agriculture extension workers, and farmers in biosecurity;
- vii. Implement pilot biosecurity projects (sector 3 farmers, live bird markets, hatcheries, slaughter points, etc.) through public-private partnerships;
- viii. Create and disseminate material regarding these new approaches to poultry farmers and relevant target audiences. Implement formative research on alternative strategies for raising poultry and ducks;
- ix. Create and implement poultry clubs, associations and other models;
- x. Share best practices regarding poultry farming and biosecurity measures; and
- xi. Train AHWs in targeted areas in these new approaches.

During the final year of the project the Scope of Work for the AHW Capacity Building and AEW Capacity Building component was revised to focus on the following activities:

- i. Continue to work with the Australian Foundation for the Peoples of Asia and the Pacific (AFAP) to expand the AHW capacity building model to a target of at least 15 provinces in Year 4 TOT training and advocacy for the network development and training packages for AHW;

- ii. Coordinate/collaborate with other donors, relevant counterparts, and private sector to advocate for adoption, replication and sustainability of the APII models in other provinces;
- iii. Continue to advocate at the national and provincial level for the adoption of a formal AHW Terms of Reference (TOR);
- iv. Provide technical assistance to the Department of Animal Health (DAH) through the development of a strategy and accompanying package of how-to guides/protocols for provinces on making upgrades to markets and slaughterhouses;
- v. Provide technical assistance to DAH to develop checklists (for example food safety checklists for markets) and management protocols for management boards to implement;
- vi. Explore opportunities for public-private partnerships in order to leverage resources and build sustainability for AHW capacity building;
- vii. Support NAEC to officially adopt manual and training materials and promote their use within the national agriculture extension system (NAEC projects and PAFEC projects);
- viii. Present the AHW training package to relevant ministries and departments to advocate for the adoption of the package in vocational training schools; and
- ix. Support NAEC to chair the OHCN (APII will serve as secretariat) and assist them in identifying additional sources of funding for the broad set of AIPED training and communication needs.

The USAID/APII strategic approach for achieving the objectives set for the AHW Capacity Building and AEW Biosecurity Training component was based on the following key aspects:

- Training needs assessment;
- Development of suitable and replicable training curriculums and materials;
- Building AHW capacity and strengthening AHW networks in five pilot provinces;
- Encouraging institutionalization of the piloted activities; and
- Dissemination and scaling up throughout the country: Training of local trainers to facilitate the diffusion training and dissemination workshops via the DAH's RAHOs as well as the Vietnam Veterinary Association (VVA) for the AHW training manual, and the NAEC and PAFECs as well as the Vietnam Poultry Association (VIPA) for the Biosecurity Training package.

2.5.2. Results

Key results and achievements of the project over the four years from the AHW Capacity Building and AEW Capacity Building component included:

A field training manual for AHWs: In order to provide a practical training resource a field handbook for AHWs was developed. The project supported revision and elaboration of an existing training handbook for veterinary para-professionals that had previously been developed by the DAH.

An electronic field training manual for AHWs: In order to provide a practical and customizable resource for trainers of AHWs, an e-book version of the manual has also been developed. The e-book is available on CD. It was developed using Microsoft Word and PowerPoint and runs on Windows-based computers. In addition to a digital copy of the full manual, the CD includes lesson plans, sample lectures and pictures of animal disease.

A version was also developed for online use. This allows users throughout the country to access the contents of the training manual and other enhanced content via the Internet. Users can download lesson plans and sample lectures for use in training activities. They can also upload their own materials such as new pictures.

Field AHW logbook: The project has developed a professional logbook for AHWs to use to record their field activities. The logbook aims to encourage and support good record keeping by AHWs on farm visits, vaccinations, treatment and other services. The use of the logbook promotes professionalism, while creating a resource for coaching and supervision as well as peer consultation within the veterinary system.

The logbook also provides a standard format for recording field activities and includes useful reference materials for field AHWs including basic information on avian influenza symptoms, the disease reporting hotline and relevant regulations on reporting of suspected disease events.

Toolkit for animal health paraprofessionals: The ability to select and appropriately use a basic set of veterinary instruments is part of basic animal health competence. Since many AHWs in the field do not have standard equipment and do not know how to properly use and maintain the equipment they do have, USAID/APII continued the development of a basic standard toolkit that was started under an earlier project. The toolkit comprises 20 items including standard types of tweezers, scissors, scalpels, syringes, needles and thermometers, an artificial insemination kit and a tray for boiling instruments in order to sterilize them.

Guidelines on the use of the toolkit provide a photo of each item, information on what each tool is used for, and how to use it correctly. Instructions are also provided on how to sterilize, maintain, store and dispose of the various instruments in the toolkit. Reports from AHWs revealed that they feel more confident when using these toolkits, and they have been maintaining them and replacing the equipment as necessary.

A training package on guidance on good practices in poultry production, produced by USAID/APII in collaboration with NAEC experts to serve the purposes of providing biosecurity training suitable for small commercial poultry farming production. The first version was printed in 2011, and the Agricultural Public House printed a follow-up version in 2012 after NAEC officially endorsed the training package.

The package included: a) a training curriculum for farmer trainers and facilitators; b) a flipchart to guide the bio-security and good practices in small commercial Chicken production; c) a flipchart to guide the bio-

security and good practices in small commercial Duck production; and d) two comic book stories: “Uncle Mau raises Chickens” and “Brother Ba raises Ducks.”

Distribution of the training manuals: In late 2012, with the official endorsement of DAH, 8,000 copies of the manual were printed and distributed by the Agriculture Publishing House. Three hundred copies of the CDs and 1,200 sets of the veterinary toolkit and guidelines have also been produced and provided to 63 Provincial/City SDAHs and to district veterinary stations in more than 700 districts throughout the country.

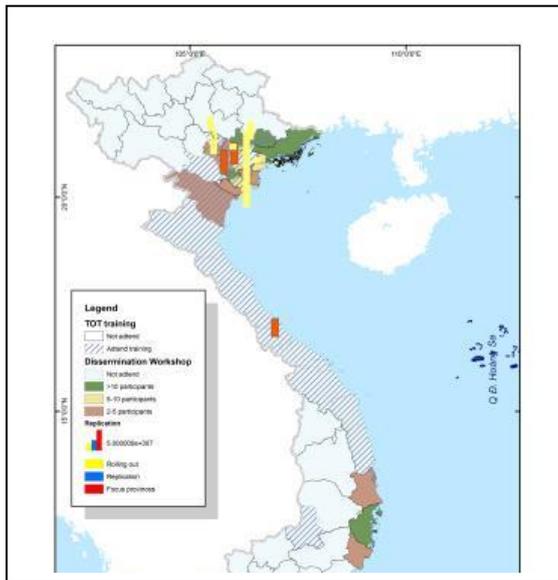
The manual has been introduced to the commercial sector via a public-private partnership with the Moc Chau Dairy Cattle Joint Stock Company. These commercial companies use the training materials for AHW’s introductory training on a variety of infectious diseases.

The French organization Agronomes and Vétérinaires Sans Frontières has also incorporated the manual and CD into its projects in the northern upland provinces, distributing 410 copies of the manual and eight copies of the CD in Dien Bien, Phu Tho, Son La, and Yen Bai provinces.

Train the Trainer courses conducted for 329 persons from 38 provinces. As a result, Quang Tri and Ninh Binh provinces have already applied the manual as part of provincial field AHWs training projects on. Other provinces including Son La, Thai Binh, Dac Lac and Vinh Long have indicated that they are planning to use the manual for their training programs.

A website was designed to introduce network development activities, sharing experiences and providing updated information on the VVA website from June 2012 onwards. This has become an additional channel for AHW to access information. As of August 2013, 178,187 visitors had visited this website.

Figure: Map of locations covered by activities under the AHW Capacity Building and AEW Biosecurity Training component



2.5.3. What worked and what didn't

Addressing veterinary system gaps in AHW capacity development: There is currently no specific official division within MARD DAH that is responsible for AHWs. In addition, the existing legislative framework doesn't acknowledge or define the status or roles of AHW networks at village and hamlet level. USAID/APII tested a model AHW capacity building through provincial SDAHs and through district veterinary stations as well as through working with the VVA and establishing or strengthening the role of VVA provincial and lower level chapters to reach this target group. Starting with strengthening capacity for VVA and support for VVA to develop an overall strategy for the period 2012-2015, including activities for enhanced capacity for both AHWs and for the network of associations under VIPA, USAID/APII proved that VVA and its public-private partnerships had reached a large group of AHW in the pilot provinces/cities of Hung Yen and Can Tho in a relatively short period of time. These relationships developed through co-hosting trainings together with big pharmaceutical companies like Nam Thai, HANVET, and Green Vet. We identified that there was a lack of training materials and courses available for AHWs, and USAID/APII developed a training curriculum to fill these gaps. USAID/APII then recruited interested pharmaceutical companies who ran with the concept. These companies quickly understood that by training AHWs they can fill a void needed by the local community and create demand for their products. This worked well as a partnership; however, a balanced approach is very necessary, keeping in mind the need for generalized training. The lesson plans for lecturers need to serve the actual needs of AHW within their respective communities and the company interests of advertising their products.

Applying the AHW network model and AHW training in the public sector in Quang Tri: The AHW network model was particularly successful in Quang Tri due to the commitment of the local authorities to strengthening the veterinary system at the district, commune and village levels within the province. Decision

25 issued by Quang Tri PPC in September 2009 demonstrated this commitment and provided a robust basis for USAID/APII to work with the province to support the development, training and networking activities for AHWs within the province, and then for the province to sustain these activities with official recognition of the roles and status of AHWs at the commune and village levels and ongoing investments in monthly allowances for these AHWs as well as provision of training courses to address training needs of these AHWs, some of whom have limited veterinary education, particularly in mountainous and isolated parts of the province. Quang Tri now has more than 1,000 village AHWs. In 2012, the province invested more than 1 billion VND (approximately USD 48,000) from the overall budget for the provincial Department of Labor, Invalids and Social Affairs for training new AHWs. The SDAH of Quang Tri has also enhanced their animal disease surveillance through adopting a new regular disease reporting form used by these village AHWs.

Applying the AHW training through a public-private partnership: The partnership between USAID/APII and Moc Chau Dairy Cattle Company was another success story, with training for Moc Chau local trainers followed by diffusion training for newly recruited technicians funded by Moc Chau Dairy Cattle Company and using the USAID/APII AHW training materials.

The animal disease surveillance network continues to face challenges: In many areas local animal disease surveillance faces challenges due to the lack of official legislation or support for local network development with a strong commitment by local authorities. The new veterinary law expected to be issued in the coming year and the new draft national proposal for Animal Health Sector Development can be considered as good initial steps by DAH.

Development and roll out of the USAID/APII biosecurity training package: The biosecurity training package for Sector Three poultry farmers was developed and rolled out very well by through Training of Master Trainers (TOMT) and Training of Farmer Trainers (TOFT) courses for agriculture extension workers supported by USAID/APII, followed by diffusion training for farmers through training activities integrated into national and provincial extension programs.

The training package was highly appreciated by USAID/APII counterparts. “The training package has been successfully integrated into NAEC’s project on Biosecurity Fowl Production in Mekong provinces”, Nguyen Van Bac of NAEC reported at the USAID/APII closeout workshop organized in Hanoi on August 6, 2013. From 2011 through 2013, this training material has been applied in 14 provinces/cities in the Red River Delta (Bac Ninh, Hanoi, Hai Duong, Hung Yen and Hai Phong) and nine provinces of Mekong River Delta (Kien Giang, An Giang, Bac Lieu, Ca Mau, Dong Thap, Long An, Soc Trang, Tra Vinh and Tien Giang). Thousands of comic storybooks on bio-secure chicken and duck production have also been distributed to poultry producers nationwide.

The An Giang PAFEC has applied the biosecurity training contents and methodology widely with poultry farmers throughout An Giang province using funds allocated by the PPC. This province-wide diffusion training to promote biosecurity practices in poultry husbandry including 79 courses in 2012 on biosecurity in poultry husbandry, reaching 2,319 farmers, 22 courses for leaders and key farmers from small formal and informal cooperative groups reaching a total of 649 farmers, and a further 55 courses under the annual agricultural

extension program and the national “New Rural Development” targeted program. Group meetings have been organized by 66 formal and information cooperative groups.

Good practices at farming level through the use of culturally and technologically appropriate visual materials linked with effective group facilitation methodologies worked well in stimulating the participation of farmer trainees during the training sessions. It was relatively expensive to design these materials due to the need to consult and revise the materials based on feedback from stakeholders in different parts of the country. However, the roll out and replication is conversely relatively cheap and efficient. This was demonstrated by the adoption of the materials and methodology by NAEC and PAFEC, which also demonstrated the demand for this training. Adaption of the biosecurity training tools for use by local communities was also an evidence of this. For example, flip charts were translated to PowerPoint slides and used to reach larger groups of farmers with messages in Tra Vinh, Dong Thap and Soc Trang, increasing the reach of the training. These materials were used as tools to lead and facilitate technical discussions with farmers and to support farmers in participating in training. Relevant sections of the comic storybooks were also reprinted and inserted into a series of newsletters, which were distributed to farmers in An Giang.

2.5.4. Lessons learned

The commitment of PPCs, veterinary services and other counterparts were the key factor in the success, replication and sustainability of the USAID/APII models with the public veterinary system. Where the PPC and veterinary services were committed the model succeeded.

The project developed methodologies to develop the capacity of AHWs who did not previously belong to public or private networks. The project also developed private sector partners by giving them training modules and the capacity to train AHWs when distributing veterinary medicines and carrying out vaccination activities. This also strengthens the public vaccination program, as currently MARD distributes vaccines to the SDAH, who then distribute them to contracted vaccinators. Further work in future should apply this approach and further develop it as one kind of public-private partnership. While, initial experiences with a public-private partnership approach demonstrated a good potential for the USAID/APII training curricula and materials to be applied by commercial entities working with small-scale producers, an agreeable way of working partnership was never discovered.

2.6. Supply Chain (Poultry Supply Network) Strengthening

2.6.1. Objectives

The goal of the Supply Chain (Poultry Supply Network) Strengthening component was to implement risk reduction measures for HPAI and EID at key identified nodes of the poultry production system, in order to: a) Improve animal and human health; and b) Enhance local businesses and increase the likelihood for the private sector adoption.

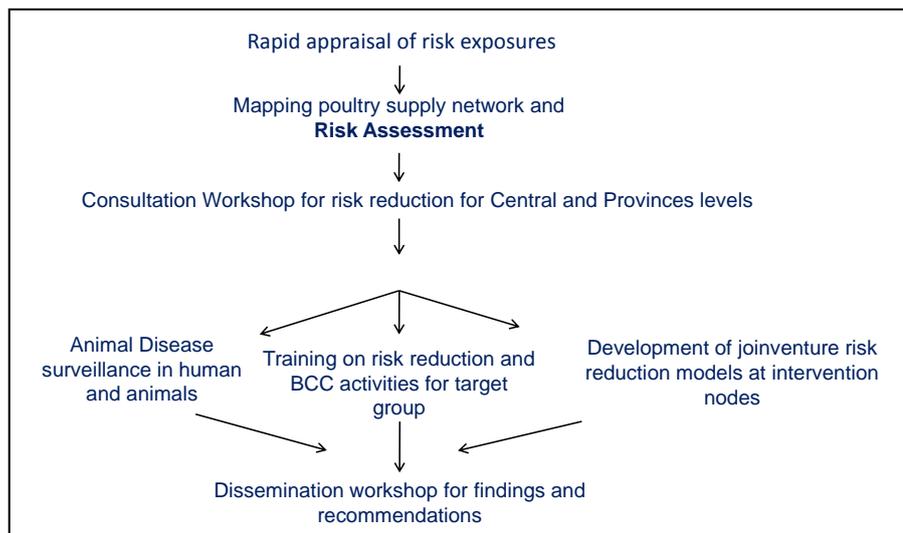
During the first three years of the project, the scope of work for the Supply Chain (Poultry Supply Network) Strengthening component focused on activities in the five focus provinces to:

- i. Identify relative risk along supply chains and effective and sustainable risk reduction interventions;
- ii. In coordination with other partners, strengthen biosecurity/ supply chain capacity across the national/provincial/district levels;
- iii. Strengthen and expand the appropriate certified poultry supply chains in select provinces and foster GVN buy in.

Building on the achievements and models developed during the first three years, during the final year of the project the scope of work (SOW) for the Supply Chain (Poultry Supply Network) Strengthening component moved to a focus on wider application of the USAID/APII models through the following activities:

- i. Monitor behaviors in the markets and slaughterhouses; conduct limited follow-up trainings in biosecurity practices as needed.
- ii. Help market management boards identify and implement any additional changes/upgrades needed.
- iii. Revisit STOP AI models and disseminate lessons learned and activities sustained post-STOP AI
- iv. Work with DAH in coordination with Vietnam Poultry Association to develop a roadmap for improving food safety at market places, providing input into its design and share lessons learned from the slaughterhouse and slaughter point models.
- v. Encourage technical groups, provincial authorities, the Livestock Competitiveness and Food Safety Project (LIFSAP) and Vietnam Avian and Human Influenza Control and Preparedness Project (VAHIP) representatives in scaling up and replicating the model.

Figure: Roadmap for risk reduction of HPAI and EID along supply chain



USAID/APII’s strategy for strengthening poultry supply chains for HPAI and EID risk reductions and was based on the following:

- **Risk based approach:** based on initial risk assessments of poultry supply chains/networks in targeted provinces.
- **Prioritize key nodes of supply chain for risk intervention and prioritize risk reduction measures:** The developed risk reduction measures were comprehensive in scope, and aimed at reducing the likelihood of HPAI and emerging pandemic threats as well as other biological hazards that can adversely affect the poultry enterprise performance transmitting at each node of the supply chain but in the local concept of what, where and when applicable upon the current situation of locality. For example, identify the “hot spots” or nodes where HPAI may most likely be introduced into the supply chain and identify risk reduction measures in phases as a short-term, medium or long-term. Risk reduction measures were prioritized according to the following criteria: a) HPAI risk reduction impact, b) Practicality in implementation, c) Relative cost in implementation and d) Socio-economic benefits.
- **Multi-sectorial approach:** The strategy integrated animal health, human health and behavior change inputs.
- **Developing and implementing models:** the project focused on developing and testing and refining effective, replicable, adaptable and sustainable models. Models were continuously evaluated and improved during operations in order to find the best fit with each specific situation and to identify the general factors suitable for wider replication.
- **Provide evidence of improvement for policy and decision makers:** the results of the models were documented through a variety of means including manuals and guidelines as well as photos and films. The documentation of the models was disseminated widely and complemented by observation and learning visits to key models, which served as training platforms for sharing results and advocating for replication.

2.6.2. Results

Supply Chain Risk Assessment: The Rural Development Center (RUDEC) of MARD conducted an initial risk assessment in the five focus provinces under a sub-contract with USAID/APII. The findings were disseminated to representatives of key regulatory authorities at the national and provincial levels and international partners through dissemination workshops “Provincial Strategy Workshop for Risk Reduction in Supply Chains” in July 2010. These workshops resulted in lists of priority (high risk) nodes and risk reduction measures for supply chain interventions and demonstration model development in each target provinces and a draft of project strategy and implementation framework 2010-12 and an integration matrix to guide an integrated animal health/human health/BCC supply chain approach.

Since then, USAID/APII’s small-scale poultry slaughtering facilities and market models of risk reduction are now operating in Ha Nam, Quang Tri and Can Tho provinces.

Demonstration models on HPAI risk reduction: The demonstration models assisted the beneficiaries and related stakeholders to make step-by-step improvements to sanitation and food safety to be compliance with relevant GVN

regulations, where available, and to provide a basis for draft inputs for potential future government regulation where this might be needed. The models contributed to improving productivity, business activity and income for the beneficiary households/enterprises. The purpose of the models was to demonstrate the implementation of the prioritized HPAI risk reduction measures as a model for wider replication. For each model, complementary BCC activities were conducted to improve knowledge, attitude and practices for the poultry network actors in prevention of disease transmission along the supply chain.

Using those physical models and the STOP AI model as training platforms, APII has been introduced the model and its approach widely to local counterparts: Nine national and provincial workshops with total up 450 participants from 25 institutions and 45 provinces.

Particularly important amongst these were the “National workshop on the present situation and recommendations for food safety slaughtering, processing and trading poultry and poultry products at market and slaughterhouses” organized in Hanoi on June 7-8, 2012 and the “Food safety workshop on sharing experiences and veterinary technical documents” organized in Hanoi on May 24, 2013. Experiences from the USAID/APII models and workshops outputs were also reported by VIPA to the Prime Minister via an official letter dated September 12, 2012.

Two technical briefs have been developed and shared, one on the separations of plucked and live poultry and another on improving food safety by promoting small-scale poultry slaughtering facilities.

A National Proposal on ensuring food safety at transportation and slaughtering has been developed by MARD DAH with support from USAID/APII. The proposal is now ready for submission for wider governmental review.

A guide for slaughtering facilities on “Good Manufacturing Practices and Good Hygiene Practices” has been developed and handed over to MARD DAH for consultation and review as a basis for official consultation.

Study tours have been conducted with 250 participants, including participants from national institutions including DAH, DLP, VIPA, VVA, NAEC, research centers and institutes, FAO, VAHIP and LIFSAP, provincial and district staff from 21 provinces, 58 owners of slaughtering facilities from provinces not originally covered by the project, and representatives of 15 market management boards including the large Ha Vy live poultry market serving Hanoi.

A package of materials was developed to promote and support the adoption and adaptation of risk reduction model at market place and slaughterhouses^{iv}: The package includes:

- Technical Proposal for risk reduction at market or slaughterhouse
- Technical Guidance on small poultry slaughterhouse
- Technical Guidance on Live Bird Markets
- Stakeholder Agreements
- Implementation reports

- Technical drawings

Developed training materials on Risk Reduction and BCC materials: The training materials include:

- Live Bird Market Model Poster and pamphlet series
- BCC Posters to promote the application of biosecurity practices at markets and slaughtering facilities.

Training course for market vendors, slaughterers and inspectors: 283 inspectors from 14 provinces covered by RAHOs 3,6 &7 have been training on inspection of slaughtering activities and facilities, 135 slaughterhouse owners have been trained on risk reduction techniques, 56 small and medium slaughterhouses and three market management boards from 15 provinces requested technical assistance and 35 slaughtering facilities in the Mekong and central regions received technical assistance, consultations and equipment.

2.6.3. What worked and what didn't

Risk assessment and the risk management matrix did work well for USAID/APII to identify and develop approaches to implementing risk reduction model development in general and activities in the small-scale slaughtering facilities and poultry markets in particular.

Key elements to reduce the risk of disease transmission from live birds at market place included:

- Establishing a separate area for live birds at the market and moving slaughtering out of the market
- Improved facilities and sanitation practices
- Provide training and promote education for vendors, transporters, and market officials.

All of these worked well in the model at the Hoa Mac poultry meat market and Dong Ha live bird market and poultry meat market. Nevertheless, there were a few things that did not work well, such as the installation of footbaths. While footbaths were recommended from a technical perspective to reduce the risk of cross-contamination from the live bird market via the footwear of customers, in practice due to cultural norms and customer habits the footbath intervention did not prove feasible. Contained stalls were also recommended from a technical perspective, but did not work very well in practice as a design element for markets such as Dong Ha, as people are generally familiar with an open market design where they are able to walk through and easily access and touch poultry. Stallholders quickly moved outside of the strictly contained areas bounded by a fence and with footbaths at points of ingress/egress when they felt that they were losing access to their customers.

Key elements of the small slaughterhouse model to reduce cross-contamination included:

- One-way processing
- Suitable infrastructure, equipment and daily
- Training and certification for slaughterhouse operators and owners

Each of these elements by itself improves hygiene and sanitation and reduces the risk to human health. Combined together they provide a practical approach that can be applied immediately for many market places and slaughterhouses in Vietnam.

Cleaning of market and slaughter points generally worked well in the different models, with the exception of the Ngoc Xuan centralized slaughtering in Can Tho. It proved to be important to have designs that facilitate cleaning. For example, the moveable, feces catching mats in the USAID/APII model at Dong Ha proved to be more feasible and effective than the approach tried in Ha Vi market. It was noted that Ha Vi Market did not have a mechanism for separating sick poultry from other poultry, which would require both a suitable contained place to put sick poultry, separate from other poultry, and enforcement of separation/removal of sick birds.

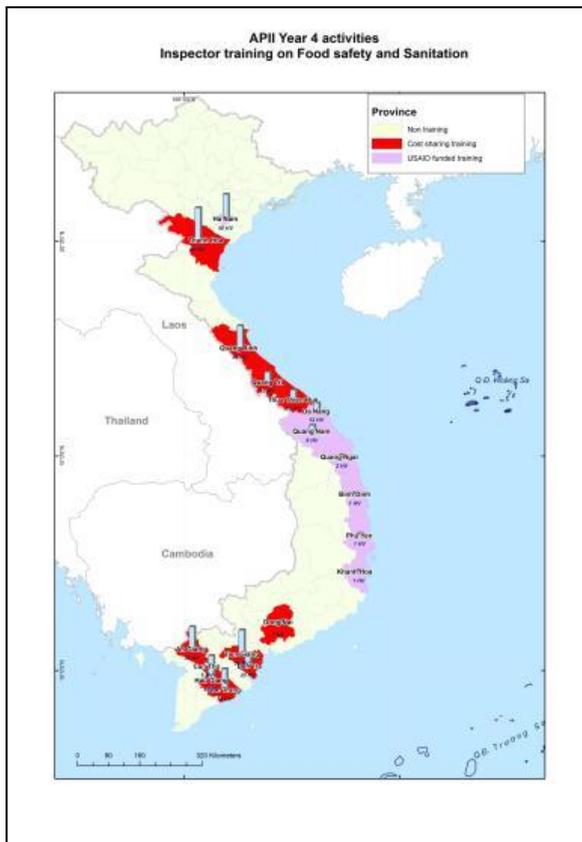
The demand for inspector training from new SDAHs in RAHO3 and Mekong regions on risk reduction at slaughterhouse and market places is high when a cost-sharing mechanism is available.

In Year 3, through the process of implementing three training courses on poultry inspection, USAID/APII developed a curriculum for Advanced Training on Inspection of Poultry and Poultry Products for Food Safety and Sanitation. This training has been designed to complement the existing formal RAHO basic training for inspector certification. The USAID/APII advanced training includes additional topics such as updated information on AI, EIDs and food borne diseases; the poultry supply chain and how disease transmission occurs at key nodes; and the design and operation of poultry slaughtering facilities to enhance sanitation and food safety.

To facilitate the training course implementation and balancing between interests of different parties, RAHO, provincial SDAH and USAID/APII agreed to formulate a general course that combined the curriculum developed by USAID/APII and the standard RAHO course. A cost sharing mechanism was identified for replicating the USAID/APII-designed course. Training courses in Ba Ria Vung Tau and Quang Binh are examples of this approach. In these cases, each provincial SDAH contributed approximately 50 percent of the total training costs, focused on administration and participant costs, while USAID/APII covered the remaining 50 percent, and mostly related to the costs of the trainers and the training materials.

In cooperation with DAH and its RAHOs, the USAID/APII organized seven training courses for 288 inspectors from 17 provinces, with locations and numbers of people trained as follows: Thanh Hoa (53), Hue (14), Quang Tri (11); Quang Binh (3); Da Nang (12); Quang Nam (9); Binh Dinh(1), Khanh Hoa (1), Phu Yen (1); Quang Ngai (2); Tien Giang(39), Ben Tre (20), Dong Nai (7), An Giang (36), Soc Trang(34), Hau Giang(40) and Can Tho (5).

Figure: Map of the locations of USAID/APII inspector trainings



Evaluation results from these training courses showed that most of the trainees achieved sufficient knowledge on good practices for food processing, safe slaughtering and waste management in order to carry out inspection, as well as being capable of providing consultancy and effective supervision to slaughterhouse for better veterinary hygiene and food safety.

Dissemination and advocacy for the USAID/APII models: During and after upgrading the models, the “Supply Chain Models Technical Review Meeting” has proved to be a good advocacy tool for endorsement from localities. This process provides an opportunity for all sites to review the road map for collaboration, to identify achievements and to drive the next steps for replication and institutionalization. A good example of the potential results of this process is the new provincial Decision Number 32/2012/QĐ-UBND of Ha Nam Provincial people committee on the management of animal and animal product slaughtering, transportation and inspection in Ha Nam province, that was issued on December 13, 2012 following of the Ha Nam provincial proposal for improving the inspection of animal slaughtering in the period 2012-2020, and the Duy Tien district proposal for slaughtering inspection for the period 2011-2012 provided another good example.

Another example is the way in which the Quang Tri SDAH was able to enhance the application of veterinary certification by increasing awareness of the value of certification with producers, vendors and consumers and by certification of poultry products that slaughtered in good slaughtering practice slaughterhouses. Decision Number 286/QĐ-SNN dated May 29, 2013 on Temporary Regulations for poultry slaughtering and poultry production trade in Quang Tri and Official

Letter No.494/SNN-CN directing the management of poultry slaughtering, poultry production trade in Quang Tri provide examples of this.

A few remaining challenges should be mentioned, such as:

- **The traditional cultural norm of buying live poultry** persists and farmers need to sell their poultry products in a manner that meets reaches customers.
- The market model for better control and risk mitigation in the poultry sections of markets is a feasible upgrade, however, there are challenges related to the market’s **location** and **land availability, local policy** and **competing priorities**.
- **Profit margins** are especially small, and even more so in small-scale slaughtering operations. It is understandably hard to persuade these small private entrepreneurs to invest in facility upgrades without some form of subsidy/financial support or forcing from local authorities.
- **Certification** does not distinguish between hygiene practices among facilities.

2.6.4. Lessons learned

Prioritizing infrastructure improvements to reduce cross contamination was an effective way of reducing risk with limited funding availability.

Study tours were very successful and well received. Visiting upgraded facilities promoted community involvement and a mindset related to a “need for change.”

Food safety and supply chain risk reduction is a long-term process that requires high levels of commitment from local authorities and private stakeholders, and this must be taken into considerations for planning.

It is vital to include all stakeholders early in the process. This can help with mobilization of resources and increase contributions from the private sector. The table below lists the local contributions for each model:

Table: investments in upgraded facilities and equipment for each model

Model	Project support (USD)		Local contribution (USD)	Total Investment (USD)	Date completed
	Facilities	Equipment			
Live poultry and poultry meat sections of Dong Ha market, Quang Tri province	\$44,537		\$9,566	\$54,103	December 2011
Hoa Mac market, Ha Nam province	\$28,719	\$1,181	\$2,439	\$32,339	October 2012
Ngoc Xuan Centralized Slaughterhouse, Can Tho city	\$41,567	\$8,932	\$65,902	\$116,401	August 2012
Two small-scale slaughtering	\$9,215	\$4,578	\$6,341	\$20,134	July 2012

facilities in Dong Ha, Quang Tri province	\$5,762	\$2,642	\$3,902	\$12,306	
One small-scale slaughtering facility in Dong Ha, Quang Tri province	\$5,642	\$1,366	\$3,415	\$10,423	October 2012

Exchange rate: 1 USD = 20,500 VND

2.7. Behavior Change Communications

2.7.1. Objectives

During the first three years of the project, the Behavior Change Communications (BCC) component worked primarily in five focus provinces to:

- i. Strengthen the capacity and commitment of GVN and key stakeholder groups at both the national and local levels to plan and manage communication activities on API and other zoonotic threats;
- ii. Increase awareness and improve the practice of key API prevention and containment measures for animal and human health workers, local authorities, farmers, supply chain participants, etc.;
- iii. Increase the capacity of human health workers, AHWs, AEWs and local authorities, and farmers in communication; and
- iv. Share lessons learned and best practices with policy and technical stakeholders to promote replication and to enhance sustainability.

Building on the achievements of the first three years, during the final year of the project the SOW for the BCC component was revised with the following aims:

- i. Continue to roll out the BCC trainers' capacity building model to associations and mass organizations, at national and provincial levels, as well as to other projects, which could then diffuse the training to their own systems;
- ii. Target neighboring provinces that were invited to the BCC transitional strategy review workshops and assisting them in implementing BCC programs;
- iii. Advocate for the uptake of the model by reviewing the budget allocation, expenditures, and activities implemented in the five focus provinces with trainers and communications plans, to provide evidence for the model's assistance to the provinces;
- iv. Support provinces where multi-sectorial communications plans have been approved (in summer of 2012) and where trainer teams are established to submit proposals for funding of communications activities;
- v. Enhance and facilitate the scale up and replication of other models. These include, but are not limited to, interpersonal communication skills-building for human and AHWs that are collaborators in the community level surveillance models, promoting community level surveillance and/or event-based surveillance replication, BCC for health care providers on IC, BCC in markets and slaughterhouses, exploring BCC intervention for consumers on choosing low risk vendors/hatchers/slaughterers, etc.; and

- vi. Continue to incorporate the USAID/APII trained BCC trainers into designing BCC activities as related to surveillance, AHW and AEW trainings, and the Supply Chain Strengthening model when those activities occur in provinces where feasible.

2.7.2. Results

Over the four-year period, the BCC component of the USAID/APII strengthened the capacity and commitment of GVN and key stakeholder groups at both the national and local levels to plan and manage communication activities on API and other zoonotic threats. The project developed an affordable and effective BCC training model that allowed multi-disciplinary BCC trainer teams (human health workers, AHWs, AEWs and local authorities) to promote the sustainable practice of desired behaviors in poultry production. In close collaboration with the established BCC trainer team in Quang Tri province, and applying peer-to-peer approach, the USAID/APII promoted the replication and adoption of its BCC training model and advocated for the uptake of the model with local resources to ten new provinces and the vocational training school system of Vietnam Farmers' Union (VFU).

Key results and achievements of the project over the four years included:

Complementary and supporting BCC activities for key activities under the animal health and human health components.

Development and application of an effective, field-tested, well-documented and affordable BCC training model for addressing API, EIDs and other behavior change issues.

Application of the USAID/APII BCC training model in a total of 22 provinces, including:

- The five original focus provinces/cities: Can Tho, Ha Nam, Hung Yen, Kien Giang and Quang Tri;
- Three additional provinces in the central region, Ha Tinh, Quang Binh and Thua Thien Hue, that duplicated the model with support from peer educators from Quang Tri;
- Seven provinces/cities through NAEC: Bac Giang, Bac Ninh, Hai Duong, Hanoi, Thai Binh, Thanh Hoa and Vinh Phuc; and
- Seven additional provinces as part of the 11 provinces covered by the World Bank-funded VAHIP project: Binh Dinh, Dong Thap, Lang Son, Long An, Tay Ninh, Thanh Hoa and Tien Giang.

Adoption of the model by the VFU including an official endorsement by the VFU leadership, and application of the model in 28 out of 69 VFU vocational training schools nationwide to date.

Training of more than 1,800 BCC experts, communicators, and other personnel from national down to community level, including:

- 22 key staff from the central level, coming from key departments and centers of MARD and MOH as well as the VVA and VIPA;
- More than 150 BCC trainers from 15 provinces;

- 575 key reporters from the Central Committee for Popularization and Education (CCPE) as well as all 63 provinces/cities, trained on AI and EID prevention;
- 20 journalists trained on BCC; and
- 1525 communicators and facilitators down to commune level who facilitate direct small group discussion and community events on key messages.

Documentation of the USAID/APII BCC training model through a two key reference documents, the BCC Strategy Development Guide and BCC Training Manual, as well as a Technical Brief on the model and a wide range of other supporting materials such as guidebooks on organizing community events and small group discussions, promotion and training videos, posters and other communications materials. Key materials have been widely disseminated, including to API partners, projects and networks and to provinces nationwide, and will continue to be available online in both English and Vietnamese in future through the forthcoming national “One Health” partnership website and the Vietnam One Health University Network (VOHUN) website.

Application of the USAID/APII BCC training model not only to API but also to other EIDs and to other health and social issues selected by the communication teams based on community and stakeholder consultations and analysis using the tools provided through the training from USAID/APII.

The costs of applying the model were identified and found to be affordable for provincial agencies. Actual examples of our counterparts mobilizing local resources for sustainability and expansion of activities following withdrawal of project support have been witnessed.

Contributing to the revitalization and refocusing of the One Health Communications Network (OHCN) with strengthened national ownership, working together with NAEC, the Communications Subcommittee within MOH under the National Steering Committee on Pandemic Influenza Prevention and Control and the Steering Committee for Dangerous and Emerging Diseases, and PAHI Secretariat as well as other OHCN participating agencies. With support from USAID/APII, the former Avian Influenza BCC Working Group adopted a new name and terms of reference, reflecting an evolving focus on “One Health” and with much stronger national ownership.

Box: USAID/AII BCC documentation and communication materials

- Communication Strategy Development Guide and BCC Training Manual
- Technical brief on the USAID/APII BCC Training Model
- BCC curriculum and participatory training for the VFU
- Discussion guides and flipcharts with different supply chain actors (poultry producers, vendors, slaughterers and collectors)
- Guidebooks on community events and small group discussion
- USAID/ APII BCC Training Model Poster sets
- Posters promoting the application of biosecurity practices at markets and slaughtering facilities
- Promotional BCC designs: T shirt, pen, notebook, cap, hat, hair cover (bandana), apron
- Can Tho and Ha Nam Provincial Communication Plans
- Seven video clips with English subtitles promoting the application of biosecurity practices for different target audiences of the poultry supply chain

These materials have been widely shared during project implementation with relevant stakeholders. A full set of these materials in digital format has been provided to both PAHI Secretariat and VOHUN Secretariat. PAHI Secretariat will upload these resources on their new Vietnam One Health website in future to maintain access to these resources.

2.7.3. What worked and what didn't

Formative research and assessment (BCC campaign assessment, provincial communication activity review, Knowledge, Attitudes and Practices (KAP) Surveys, Qualitative Consumer Study on KAP related to prevention of AI) provided a basis for the USAID/APII to translate findings and evidence into annual plan of BCC activities including those at intervention nodes of supply chain in five focus provinces.

A communication strategy and advocacy matrix developed starting in Year 3 and periodically updated thereafter proved to be an effective tool to focus on ways and mechanisms to transfer packages/models/approaches to public and private partners for adoption, adaptation, and replication and up scaling. These living documents served as effectively guide to advocate the USAID/APII's models through dissemination and replication beyond the focus provinces and also integrated into GVN systems such as MOH (IC), BCC training model into NAEC system (MARD), Women's Union and Farmers' Union.

Involvement of reporters from CCPE: The USAID/APII worked closely with the subcommittee for communication of MOH and national CCPE to conduct regional training workshops for 500 communicators (reporters) of CCPE from 63 provinces. The workshop provided updated situation of and information on AI and EID and prevention. It also helped these provincial reporters to integrate the AI and EIDs prevention and control into their meeting agenda and guidance to the lower network of CCPE. At a six month follow-up period, reports from

monitoring visits to selected 13 provinces showed that the training subjects really met the information needs of local people and therefore they were broadcasted through nearly 100 articles and 60,000 internal news on AI/EIDs prevention were disseminated and about 60 times aired on provincial television stations and 48 times broadcasted through local radio systems.

Training on AI and EID prevention for key local authorities (e.g. village heads) was conducted in the first year at communes of all five focus provinces aiming to equip local authorities with basic knowledge on HPAI for their overall coordination and support at grass-root level. All 100% target districts and 90% of communes with at least one local authority trained on HPAI and EID prevention. Training needs were done to avoid duplication and/or repetition from other project's training to date.

A network of six communication experts from MARD and MOH: In the last four years, the USAID/APII developed the capacity key staff in related departments of MARD and MOH in BCC. It trained selected staff from National Center for Health Communication and Education (NCHCE), Sub-Committee for Communication (MOH) and few others from related department of MARD including DLP, DAH, and NAEC. These national experts supported provincial APII BCC trainers to identify provincial prioritized behaviors in line with MOH and MARD's priorities and to develop their provincial Integrated Communication Frameworks in compliance with MOH and MARD's orientation (cases of Can Tho and Ha Nam provinces). This national expert team accompanied provinces and provided them with expertise in all key events such as BCC Consultation Workshop, Planning Workshops, Review Workshops, and review BCC materials. They supported other organizations to adopt and scale up BCC Training Model. Specifically, VFU received intensive support while developing and disseminating a BCC curriculum and training culture and livestock teachers on BCC and application in developing and delivering their lesson plans for farmers on livestock production and culture.



A team of BCC trainers and specialists at provinces and VFU vocational training schools was established with training of up to 150 BCC trainers and specialists (in 15/63 provinces in Vietnam including Bac Giang, Bac Ninh,

Can Tho, Ha Nam, Ha Noi, Hai Duong, Hung Yen, Kien Giang, Quang Tri, Ha Tinh, Quang Binh, Thua Thien Hue, Thai Binh, Thanh Hoa, Vinh Phuc and 28/69 national VFU vocational training schools) who are able to train people within provinces and for other provinces, over the four-year project lifetime. These BCC trainers were from various government agencies (DARD, DOH, CHEC) and mass organizations (Women's Union, Red Cross, and Farmers' Union). They can apply an effective and practical approach to analyze and prioritize their communication issues, to use proven methods suitable to each communication objective, including small group discussions, market kiosks, community events and other activities with different target groups. In addition to improving their knowledge and skills on BCC, the USAID/APII provided a course on BCC project design and proposal writing for 23 BCC trainers and officers from the original five focus provinces in 2012. Trainees in Can Tho and Ha Nam practiced by developing provincial communication plans. They also looked for funding sources to maintain and replicate USAID/APII's BCC Training Model.

The USAID/APII applied BCC transitional strategy in which the USAID/APII strengthened local ownership and leadership of provincial partners so that they could take over the autonomy by the end of the project. Together with in class training for provincial BCC trainers, the USAID/APII also provided opportunities for them to gradually and increasingly take part in the process to design, implement and monitoring seasonal BCC campaigns to promote desired behaviors among poultry farmers and other supply chain actors (vendors, slaughterers, collectors and transporters) during high season near traditional Tet holidays 2009-2010; 2010-2011 and 2011-2012. Over these three years, the USAID/APII completely and successfully transferred to ownership and leadership to provincial local partners on their own communication program management following the cycle of 8 steps from formative research to design workshop, training, material development, implementation, monitoring and review and planning workshop to the subsequent years.

The USAID/APII conducted training for 30 mass communication experts including journalists from national agencies (who previously attended FAO's training and IMCAPI's orientation) and communications staff from NAEC, NCHEC and provincial CHEC's on BCC and messaging. The course also provided technical information for API stories. The training concluded with a planning session on next steps for journalists to provide better coverage on API prevention and related APII activities. The USAID/APII involved the trained journalists not only at national level but also at provinces in disseminating project news and best practices through key events such as dissemination workshops, and/or replication of APII-BCC models. It also prepared media advisories and press releases on these activities and followed up with journalists on written articles and posted news, which were tracked and shared to related agencies and API partners. Lists of aired video and posted news and links are available for reference upon request.

Provincial BCC trainers and specialists have trained more than 400 communicators (15 provincial, 28 vocational training schools) in their own provinces and agencies who were capable to facilitate behavior changes among target audiences on various health behaviors including AI and EIDs prevention,

nutrition and healthcare, parenting, food safety, livestock production and culture.

The USAID/APII developed and left behind with all related partners, interested individual and agencies materials for the adoption and adaptation. These are described in the box on page 40.

Replication of BCC Training Model - Adoption of BCC training model into the curriculum of VFU Vocational Training system: Promoting the application of good agricultural practices among farmers is a priority of VFU. The national project 1956 was specifically developed to provide vocational training for farmers. In recognition of the USAID/ APII BCC Training Model, VFU also wanted to train their teachers on Behavior Change, who would then train farmers in cultivation and/or poultry raising practices. As requested, USAID/ APII supported the VFU to develop a curriculum on BCC and participatory training, which was officially, approved for livestock and culture teachers at all Vocational Training Schools nationwide. The project also supported training 80 culture and livestock teachers from 28 Vocational Training Schools in BCC and participatory training methods. These 80 culture and livestock teachers were coached when applying BCC and participatory training in developing and delivering their lesson plans. Approximately 1,800 farmers will benefit from lessons from these trained livestock and culture teachers.

Responding to the request of **expanding the BCC training model to NAEC's system**, the project developed a training program with technical inputs from the BCC trainer team from Quang Tri province and Agriculture University of Ha Noi for 32 extension workers from seven provinces in NAEC system (Ha Noi, Hai Duong, Bac Ninh, Thai Binh, Thanh Hoa, Vinh Phuc and Bac Giang). These participants returned to their provinces to provide support to farmers on poultry production in a more bio-secure manner.

budget, BCC trainers of Can Tho center for health communication and education applied BCC and communication skills to train health providers at hospitals to develop and revise their communication materials such as radio spots, communication materials at hospitals; they trained students of Can Tho University to develop their BCC plans and materials (BCC plans, leaflets, posters, radio programs); they promoted the application of hygiene practices for pupils at Dinh Mon primary school of Can Tho city; they organized two forums for 400 participants of Phong Dien and Thot Not district on prevention and control of breast cancer and cervical cancer.

Images: Hygiene practices of pupils at Dinh Mon 2 primary school of Thot Not district, Can Tho city



- **Kien Giang:** In 2013, BCC trainers of Kien Giang Women’s Union gained a total fund of approximately 600,000,000 VND from different sources including: Provincial Department of Transportation and Communication, Provincial Road Safety Committee, PPC, National Women’s Union, Sub-Department of Demography and Habitat. They applied BCC theory and communication skills to train trainers and communicators or head of clubs in different areas, include:
 - 30 trainers on road safety
 - 450 heads of road safety clubs
 - 80 communicators on child malnutrition
 - 200 heads of clubs on coastal demography
 - 15 trainers on micro-credit saving
 - Used BCC materials of USAID/ APII to Strengthen AI and EIDs prevention and control activities as instructed by the PPC according to official letter No 790/ CV-UBND
- **Quang Tri:** Since the beginning of the project, Quang Tri Women’s Union was very active and creative in applying BCC in other topics than AI and EIDs. They mobilized funds from Communication and Education for Vietnamese Women in industrialization and modernization period; five million mothers to well educate their children; Support women in vocational training and from Plan International. Based on the format of APII community event, they designed and conducted competitions for excellent farmers aiming to promote the application of good agricultural practices; they applied BCC and communication skills into other routine activities of the Women’s Union such as “*clean house, clean kitchen and clean lane*” movement; provided life skills training for 1,000 schools pupils at high

schools of Le Loi, Dong Ha and Le Quy Don. With local resources, Quang Tri Women's Union organized training on communication skills for 141 chairwomen of 141 commune Women's Unions to improve their communication skills and understanding of BCC theory.

In the first two years of the project, **BCC activities also promoted the roles of CBS collaborators** and their network through training all CBS collaborators in 123 communes of the focus provinces in communication and counseling skills so that they can provide consultation on poultry raising and disease prevention during household visits. The USAID/APII also supported spots on surveillance reporting through commune loudspeaker system, promoting CBS collaborator networks, reinforcing community recognition and the roles of CBS collaborators. CBS toolkits were revised and develop to promote a consistent key behavior on early detection, immediate reporting and timely response of suspected cases.

Image: A Kien Giang BCC trainer delivering a TOT training on micro credit



Provincial BCC trainers in Can Tho, Quang Tri and Ha Nam were involved in the process of designing **BCC activities targeting vendors and slaughterers at markets and slaughtering facilities**. They then facilitated discussions, meetings with vendors and slaughterers on practicing desired behaviors and maintaining changes at markets and slaughtering facilities. Forums on food safety were organized in Quang Tri and Can Tho with poultry supply chain stakeholders to promote good practices by vendors and slaughterers and to raise customer awareness on food safety and selection of safer poultry products.

Learning from the experiences in markets and slaughtering facilities in Can Tho and Quang Tri, BCC trainers in Ha Nam and the Hoa Mac town market management board organized small group discussions and monthly meetings with their poultry vendors in Hoa Mac market and a pilot slaughtering facility to encourage better application of reduced risk trading and slaughtering practices. Poster sets were developed and hung at Hoa Mac market to facilitate changes among vendors and inform customers about the efforts to improve food safety.

To date, Hoa Mac market, Dong Ha market and slaughtering facilities have been served as training platforms for neighboring towns and provinces, including Quang Tri town and the VAHIP 11 provinces, to learn and adopt from.

2.7.4. Lessons learned

Programs should build on existing systems that have responsibility and resources for communication activities so that they can sustain changes and expand to new health areas. We learned that BCC Transitional strategy works well and that transferring program implementation to partners' ownership and leadership over time so enables stakeholders to allocate and contribute resources and integrate the activities into their own planning cycle. According to our costing exercise, it costs VND 680 million (USD 32,400) in the first year and VND 600 million (USD 28,800) annually for a provincial agency to apply the BCC training model on key desired health behaviors among prioritized, high risk target audiences. As a result of lessons we were able to see the VFU continue to apply the BCC curriculum and participatory training methods to all 69 Vocational Training Schools and to apply it to new subjects in these schools. Similarly, provinces continue to use the available multi-disciplinary BCC trainers and specialist teams to work on other health behaviors in their BCC and other communication planning and implementation.

In the future, it would be helpful to improve awareness and mechanisms for using the "One Health" approach within the province and across agencies. This should be supported by overarching WHO-supported risk communication that includes communication during emergencies and operational communication which would maximize results and promote best practices to wider audiences. We similarly encourage peer-to-peer education and adaptation of BCC training model among provinces within the region to utilize limited resources.

3. Conclusions

The Avian and Pandemic Influenza Initiative successfully met the broad objective "to reduce the health risk to humans from avian influenza by controlling the disease at the source in domestic poultry, by detecting and responding promptly to human cases and by preparing for the medical consequences of a human pandemic." In doing so learned many important lessons which are summarized below.

Influencing policy and coordinating multi-sectoral partnerships is possible, but complicated and challenging. Within the health sector, USAID/APII's support to the operationalization of Circular 18 and subsequent adoption of tools through the roll out of the IC Training programs exemplified the successful influence on policy. This and all the work undertaken by the project took significant time and effort and went well beyond the intentions of our funding. This, and coordination, are importantly, not within a project's manageable control, and can't be accountable because our level of influence on the process is dependent on other actors. Furthermore, coordination will only be successful when the activity meets the institutional needs of the bodies being coordinated.

Community level surveillance in both sectors is possible, but stakeholders must value the importance of collecting and sharing or reporting the information. A model like CBS is expensive, which can be a perceived threat to its

sustainability. Furthermore, the multi-sector nature of such a model will continue to challenge the success of the model, because it requires coordination.

Clearly this is USAID/APII's most tangible success of scale up and adoption of a risk reduction model. The MOH's executive decision gave us the opening to have broad impact in this area, and we were particularly successful because we were able to provide a tool that met our counterparts' needs and was appropriate for several levels of facility and both pre- and in-service training.

Pandemic Preparedness Plans clearly should include a "whole of society" approach but to pull together a multi-sector planning and execution team is very ambitious. It requires buy-in from many stakeholders. A more feasible approach would be to consider a phased or prioritized plan. Additionally, the effectiveness and success of such plans are hard to measure. Simulation plans are useful for this purpose but in the end we will not know our final results unless an actual outbreak happens, and happily we have not yet had to test the model.

Making AHW training broader than just HPAI made it a useful tool, which is evidenced by the uptake by several partners, including those not working with poultry directly. Similarly, AEW biosecurity training demonstrated that the cost of investing in a feedback loop led to the development of tools that were in high demand.

Succeeding in promoting risk reduction in the Poultry Supply Chain Network requires regulatory support and MARD participation. The large investment in both large- and small-scale slaughterhouses and markets were successful, but only with communal support. And small-scale slaughterhouse upgrading proved replicable by slaughter points themselves with encouragement and technical advice.

Civil society appreciates and took up the model of using BCC theory to inform communications. While accurate low risk perception will always create an environment in which it is difficult to demonstrate changes in behavior, we are confident that the actions taken here will contribute to long term changes in behavior for reduced risk related to zoonotic and EIDs.

We recommend that future work in AI and EID be integrated. The model presented by USAID/APII – a project broad in scope and broad in level of engagement is able to tackle an array of problems. While it is crucial to have willing partners for success the broad scope allows the project to find willing partners and identify places to achieve results.

ⁱ <http://www.express.co.uk/news/uk/383353/Antibiotic-resistance-a-time-bomb>

ⁱⁱ IC training material for health care workers at grassroots levels, MOH, 2012

ⁱⁱⁱ Guideline for SARS control and prevention, MOH, 2003

^{iv} List of Technical Deliverables