



# **APEIR at 3: Emerging Results from a Self-Reflection Exercise**

Chun Lai, APEIR Consultant

*Final Draft*

*31 January 2010*

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## ACKNOWLEDGEMENTS

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Acknowledgements and thanks are warmly and gratefully extended to the APEIR family for their kind cooperation, active engagement and valuable contributions throughout the self-reflection process.

Since the announcement of this exercise on 13 November 2009, by Dr. Amin Soebandrio, APEIR Steering Committee Chair, more than 50 APEIR researchers, Steering Committee members, and IDRC staff and consultants have provided insightful reflections and thoughtful responses to key questions – through in-person interactions in Siem Reap, Bangkok, Hanoi and Kunming, as well as various electronic communications.

Warm thanks are bestowed upon the APEIR Coordinating Office (Dinh Xuan Tung and Pornpit Silkavute) for playing such a prominent and effective role in arranging and facilitating various schedules and events during the course of the self-reflection exercise.

Finally, the IDRC ecohealth team planted and nurtured the seed for this exercise, and the constructive contributions and continuous encouragement of Martin Wiese, Hein Mallee, Andrés Sanchez, Tricia Wind and Zsofia Orosz are gratefully acknowledged, as well as the efficient administrative support provided by Elaine Tang.

## EXECUTIVE SUMMARY

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In the past three years, APEIR has evolved into a unique “trust-based network” comprising researchers, officials and practitioners from Cambodia, China, Indonesia, Thailand and Vietnam who work at the forefront of combating emerging infectious diseases. In parallel with the development of the APEIR Strategic Plan for 2010-2013 was the emergence of a felt need to reflect upon and consolidate the substance of progress, achievements and challenges as the network moves ahead. In response, a self-reflection exercise was conceived and implemented during November 2009 to January 2010, with wide and active participation by APEIR researchers, Steering Committee members and concerned IDRC staff and consultants.

**Achievements.** This exercise stimulated reflections and responses from some 30 partner institutions who have been implementing five APEIR research projects on: *wild migratory birds, backyard poultry systems, socio-economic impact, policy analysis, and control measures*. Although still preliminary in nature, the projects have generated a diverse range of research results, outputs, outcomes and emerging impacts, including these key elements:

- Regional platform for learning and capacity building;
- Multidisciplinary research partnership and trust-based network;
- Evidence-based and policy-relevant research findings;
- Engagement with community, national and regional stakeholders; and
- Community-level surveillance approaches and mechanisms.

Findings from these studies are extremely important for the development of national EID preparedness strategies in each participating country, as well as a joint regional strategy.

**SWOT.** Analyzing the internal (strengths and weaknesses) and external (opportunities and threats) environment within which APEIR operates was an integral part of the self-reflection. Through this analysis, the following major points were revealed:

- **Strengths:** nature of network, performance of management mechanisms and arrangements, ecohealth concepts and cross-country approaches;
- **Weaknesses:** communications (internal and external), capacity, funding, country-level networking, lack of performance of current arrangements, policy influence;
- **Opportunities:** expanding partnerships at various levels, recognition of APEIR by ASEAN+3 Health Ministers Special Meeting on H1N1; and
- **Threats:** funding uncertainties, dynamics in government policies and personnel, crowded field with many competitors.

**Future niche.** The self-reflection responses provided an array of valuable perceptions and ideas about what APEIR’s niche should be in the future. Overall, this niche encompasses:

- *Generating and managing knowledge:* conducting practical research that focuses on transboundary problems, and effectively communicating results;
- *Building capacity* of researchers, communities, policy makers and other stakeholders;

- *Advocating* for appropriate social and policy responses; *influencing* policy and practice; and
- *Networking* at community, national, regional and international levels; *convening* multi-stakeholder processes

In terms of the network's more specific ***future roles and functions***, key ideas put forth by APEIR members included the following:

- Continuing symbol of mutual friendship;
- Playing to internal strengths;
- Going beyond research to communications and dissemination;
- Developing community-level surveillance and models;
- Focusing on the research-policy interface;
- Targeting national governments and regional organizations;
- Revitalizing the Steering Committee;
- Establishing or linking with national networks;
- Aiming research at the greatest risks; and
- Addressing the big-picture challenges.

***APEIR M&E mechanism.*** Based on the experience and insights gained through this exercise, the following approaches, tools and processes may be considered for inclusion into the future APEIR monitoring and evaluation mechanism:

- Self-reflection approach for assessing past achievements, current strengths and weaknesses, and future directions;
- SWOT analysis as an integral part of self-reflection, or a stand-alone tool;
- Outcome Mapping to monitor and evaluate a program's results in terms of changes in the behavior of direct partners; and
- Network functions approach to analyze the functions performed by a network, how well they are performed, and how a network should adapt to internal and external dynamics.

This report attempts to do justice to the evolving APEIR story – through the voices, thoughts and aspirations of the people who have provided the collective social and intellectual capital for successfully launching the early years of the partnership, and the impetus for fulfilling the promise of even greater achievements and impacts in the years ahead.

## PURPOSE AND SCOPE OF SELF-REFLECTION

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In 2005, the Asian Partnership on Avian Influenza Research (APAIR) was initiated by Canada's International Development Research Centre (IDRC) to promote regional research collaboration on bird flu (H5N1). Subsequently in 2009, the network was renamed as the Asian Partnership on Emerging Infectious Diseases Research (APEIR) in order to examine a wider range of emerging infectious diseases (EIDs), including the pandemic swine flu (H1N1) outbreak. For more information on APEIR, please visit [www.apeiresearch.net](http://www.apeiresearch.net).

During the past three years, APEIR has evolved into a unique "trust-based network" comprising researchers, officials and practitioners from Cambodia, China, Indonesia, Thailand and Vietnam. Two representatives from each country as well as from IDRC form the Partnership Steering Committee, which provides overall guidance, coordination and supervision. A small Coordinating Office, based at the Health Systems Research Institute (HSRI) in Nonthaburi, Thailand, serves as the main communications hub among partners, and coordinates and monitors the work of regional and national research teams. Country Focal Persons have been designated to communicate and work closely with the Steering Committee and Coordinating Office.

APEIR work is underpinned by principles of ecohealth, which addresses EIDs as a development problem, rather than a medical one. As a holistic systems-based approach that places human health and wellbeing in the context of environmental, social and economic causes and impacts, ecohealth requires multidisciplinary research teams and involves all relevant stakeholders.

More than 30 partner institutions representing a range of expertise and sectors have been participating in five APEIR research projects on: **wild migratory birds, backyard poultry systems, socio-economic impact, policy analysis, and control measures**. Findings from these studies are extremely important for the development of national preparedness strategies for EIDs in each country, as well as a joint regional strategy.

## OBJECTIVES AND PROCESS

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After three years of working hard to build the collective social capital and research activities of APEIR – and in line with the draft APEIR strategic plan for 2010-2013 – there was a felt need to reflect upon and consolidate the substance of progress, achievements and challenges as the network looks into the future. Therefore, the APEIR Steering Committee decided to implement a self-reflection exercise, during November 2009 to January 2010, to capture the achievements, social capital and major lessons gained to date, with these specific objectives in mind:

- To build up the track record and the social capital of APEIR in a systematic, participatory and self-reflective way;
- To contribute toward building a coherent APEIR 'story-line' feeding into the development of a communication and fundraising-strategy by APEIR; and
- To inform and strengthen the internal strategy development of APEIR, and more specifically its future M&E mechanism.

A consultant (Mr. Chun Lai) was engaged to help facilitate the self-reflection process among key APEIR partners: research project leaders in each country, country focal persons, Steering Committee members, Coordinating Office and IDRC (see Annex 1 for list of key contacts).

Guidelines and 10 key questions were developed to stimulate the self-reflection process (see Annex 2). There were opportunities for the consultant to meet and interact with various APEIR partners during these events:

- Wild birds research team workshop, 5-7 December 2009, Siem Reap;
- Thai APEIR meeting, 9 December 2009, Bangkok; and
- Visit to Vietnam to meet with research teams, 10-16 December 2009, Hanoi.

In addition to these in-person meetings, the consultant contacted APEIR colleagues by e-mail (and some by Skype) as an integral part of the exercise.

The results from this exercise will be shared, discussed and refined at the All-APEIR Meeting in Kunming, 13-16 January 2010, and the final report will be submitted shortly thereafter. Moreover, the self-reflection process and outcomes will be very valuable for guiding the development of the partnership and the implementation of the new APEIR strategic plan.

The emerging findings from this self-reflection exercise were derived and synthesized based on:

- In-person interactions and discussions with APEIR researchers in Siem Reap, Bangkok and Hanoi;
- 24 responses to the key questions received from various APEIR colleagues<sup>1</sup>; and
- Informal discussions with Steering Committee and Coordinating Office members.

The key findings are summarized in the following sections of the report:

- Achievements by the five APEIR research projects;
- Broader outcomes and emerging impacts;
- SWOT analysis of the internal and external environment of APEIR;
- Future niche, roles and functions of the network; and
- Towards a monitoring and evaluation mechanism for APEIR.

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## RESEARCH PROJECT ACHIEVEMENTS

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As already stated, the third objective of the self-reflection is to inform and strengthen the internal strategy development of APEIR, and more specifically its future M&E mechanism. In this light, the exercise sought to socialize among the researchers a common meaning of the following key concepts in relation to the achievements of projects undertaken:

- **Research results:** findings from a research project, including cause-effect relationships;
- **Outputs:** processes, goods and services produced by a project through its activities in the short-term;
- **Outcomes:** changes in the behavior, relationships and/or activities of individuals, groups, organizations or institutions that are influenced by the project; and
- **Impacts:** significant and lasting changes in the well-being of large numbers of intended beneficiaries.

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<sup>1</sup> Of the 38 APEIR colleagues requested to consider the key questions, 27 provided responses (15 researchers, 7 Steering Committee members, and 5 IDRC staff and consultants).

The key questions were structured to elicit responses according to the above categories. A PowerPoint file was also sent to APEIR researchers to help clarify these concepts. It was emphasized that activities or outputs are under our direct control and come about directly from our investments in time and money. On the other hand, outcomes and impacts are beyond our direct control, and we can only hope that our work influences or contributes to the changes we want to bring about.

During the wild birds research team workshop held in Siem Reap, the agenda included two self-reflection sessions wherein these concepts were introduced. The country research teams seemed to grasp the meaning, and were able to report their achievements by research results, outputs, outcomes and impacts (see below).

## WILD MIGRATORY BIRDS

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Thailand, China, Indonesia, Vietnam and Cambodia participate in the project on ***Forming of regional network for surveillance and monitoring of avian influenza viruses in migratory birds***. The general objective of the project is to enhance at the regional level the early detection and characterization of avian influenza infection (AI) and reporting in migratory birds through a coordinated surveillance network.

The specific objectives of the study are: (1) to confirm suspected and identify additional key species of migratory birds that have the potential to play a role in spreading AI viruses between participating countries; (2) to study the diversity of AI virus infection in selected key species of migratory birds; (3) to study the distribution pattern (geospatial and temporal) of key selected species of migratory birds in each country; (4) to carry out the surveillance and monitoring of avian influenza in migratory birds through the establishment of a regional network; and (5) to improve understanding and disseminate the scientific information on the role of migratory birds in spreading avian influenza to different audiences.

The main achievements of this project were reported by country teams as follows. A detailed list of the project outputs may be found in Annex 3.

### **Thailand**

<b>Research results</b>	<b>Outputs</b>	<b>Outcomes</b>	<b>Impacts</b>
<ul style="list-style-type: none"> <li>• Wild birds do appear to play a role in the low-level persistence and transmission of AI virus, but are not an important vector</li> </ul>	<ul style="list-style-type: none"> <li>• Symposia and workshops</li> <li>• Publications</li> <li>• Network website developed (<a href="http://www.apairswildbirds.org">www.apairswildbirds.org</a>)</li> </ul>	<ul style="list-style-type: none"> <li>• Increased public knowledge</li> </ul>	<ul style="list-style-type: none"> <li>• No culling of wild birds</li> </ul>

## China

<b>Research results</b>	<b>Outputs</b>	<b>Outcomes</b>	<b>Impacts</b>
<ul style="list-style-type: none"> <li>• Wetlands and lakes are possibly the natural origin of AI disease: may maintain the viruses and spread them through wild bird migration</li> <li>• By using GPS satellite telemetry, found that bar-headed geese may be an important vector in spread of AI along the Central Asian Flyway</li> <li>• Retrocyclin 2 was revealed as a new therapy against AI virus, in vivo and vitro</li> </ul>	<ul style="list-style-type: none"> <li>• Peer-reviewed journal publications</li> <li>• Abstracts in conferences</li> <li>• Conferences and workshops</li> <li>• Graduate student training</li> </ul>	<ul style="list-style-type: none"> <li>• Increased public awareness of the relationship between migratory birds and H5N1 global circulation, as well as getting to know the international support from IDRC</li> </ul>	<ul style="list-style-type: none"> <li>• Contributed to establishment of Joint Research Center of Chinese Academy of Sciences and Qinghai Lake National Natural Reserve</li> <li>• Raised research priority on the “Role of waterfowls and their ecology in HPAI H5N1 circulation” in CAS Innovation Program</li> <li>• Contributed to prioritizing an e-Science program in CAS Innovation Program</li> </ul>

## Indonesia

<b>Research results</b>	<b>Outputs</b>	<b>Outcomes</b>	<b>Impacts</b>
<ul style="list-style-type: none"> <li>• Data collected on AI virus in wild birds regarding: species of infected birds, types of virus, prevalence and location</li> </ul>	<ul style="list-style-type: none"> <li>• Proceedings</li> <li>• Guide book for conducting AI research (translation)</li> <li>• National strategy to control AI in wild birds</li> <li>• National and international workshops</li> <li>• Training (capacity building in sample collections)</li> </ul>	<ul style="list-style-type: none"> <li>• Accelerated establishment of Indonesian bird banding schemes</li> <li>• National network on AI research in wild birds</li> <li>• National task force for AI in wild birds (coordinated by Ministry of Forestry)</li> <li>• A post grad student for detailed molecular study in infected wild birds</li> </ul>	<ul style="list-style-type: none"> <li>• Too early to discern</li> </ul>

## Cambodia

Research results	Outputs	Outcomes	Impacts
<ul style="list-style-type: none"> <li>• Collection and diagnosis of 1,543 samples of wild birds (all negative)</li> <li>• Improved understanding that wild birds do appear to play a role in the low level persistence and transmission of AI viruses</li> </ul>	<ul style="list-style-type: none"> <li>• Technical report produced</li> <li>• Preparedness plan for AI wild bird surveillance drafted</li> <li>• On-the-job training</li> <li>• Informal meetings and workshops conducted</li> <li>• Public awareness campaign: posters, articles and magazines</li> </ul>	<ul style="list-style-type: none"> <li>• Initiated a multi-disciplinary team from the Wildlife Protection Office to implement the project</li> <li>• Built up basic capacity for surveillance and monitoring of AI in migratory birds</li> <li>• Improved public awareness</li> </ul>	<ul style="list-style-type: none"> <li>• Early detection and appropriate response mechanism in place</li> </ul>

## BACKYARD POULTRY SYSTEMS

Cambodia, China, Thailand and Vietnam jointly conduct the study on ***Characteristics and dynamics of backyard poultry systems in relation to the reduction and management of avian influenza risks***. The specific objectives of the project are to: (1) describe and analyze characteristics and dynamics of backyard poultry systems; (2) describe the networks through which poultry form backyard flock move; (3) identify and promote changes in backyard poultry systems at various scales; and (4) facilitate conversation and feedbacks between backyard farming stakeholders and policy makers at several scales.

Based on the self-reflection responses received from the backyard poultry research team leaders, the main research achievements and findings of the project have been the following:

- ***Profiled backyard systems.*** In general, the project described and compared the characteristics and dynamics of backyard poultry systems in four Asian countries, particularly the networks of backyard poultry movement and the intervention points by government. This resulted in a profile of the backyard poultry systems, which is useful for the other APEIR research projects as well as for further EID research.
- ***Applied community-driven ecohealth approach.***
  - *Thailand:* facilitated exhibitions to reduce AI risk at community level, focusing on youth, including comparison of germicidal spray and mobile unit with hygienic system for backyard poultry; conducted school essay competition on bird flu.
  - *China:* provided advice to provincial veterinary officials in the reform of veterinary systems, and facilitated feedback from backyard producers to provincial officials.
  - *Vietnam:* worked with 400 backyard poultry producers in 4 provinces, with positive outcomes in terms of improved vaccination and hygiene, separate areas to raise poultry, and no selling of sick birds. Found that the first outbreaks occurred in larger farms (100-500 birds), not in backyard systems. Vaccination rate also found to be lower than government estimate.

- **Gender considerations.** Training should focus on women, who are the main backyard poultry and livestock producers in countries such as Vietnam.
- **Changing farmer behavior.** It is difficult to change individual farmer's behavior. Community-based perspectives and organizational reform at the village level should be emphasized if we want to change the behavior of farmers and if we want the village to be more responsive to various emerging infectious diseases besides AI.
- **Community stakeholder cooperation.** Cooperation among local government officers, head of farmers, farmers and their families is key factor for solving problems they face.
- **Networking.** The AI outbreak was an opportunity to strengthen and expand the existing network (e.g., involving health and livestock departments, local governments and schools) to take serious roles in decision making.

Written or exhibited project outputs included the following:

Thailand	China	Vietnam
<p>One oral and two poster presentations at International EcoHealth Forum 2008, held 1-5 December 2008, in Mérida, Yucatán, México:</p> <ul style="list-style-type: none"> <li>• Characteristics and Dynamics of Backyard Poultry Raising System in Five Asian Countries in Relation to the Reduction and Management of Avian Influenza Risk (oral) <i>Kreingkrai Choprakarn, Khieu Borin, Lin Guanghua, Agus Wiyono and Vu Chi Cuong.</i></li> <li>• Thai Indigenous chicken: Ecology Balancer in the Rural Area (poster) <i>Kreingkrai Choprakarn, Somchai Sawasdipan, Suttini Wattanakul and Kanokwan Manorom</i></li> <li>• Research Approaches to Study the Thai Indigenous Chicken Raising System Related to AI Outbreak in Rural Communities of Thailand (poster) <i>Kanokwan Manorom, Suttini Wattanakul, Somchai Sawasdipan and Kreingkrai Choprakarn</i></li> </ul>	<ul style="list-style-type: none"> <li>• Yuan Rijin, Lin Guanghua, He Jun. 2008. Reconsideration of backyard poultry and its policy implications. <i>China Poultry Vol.30, No.23</i></li> <li>• Lin Weikun. 2009. Factors influencing the adoption of prevention and control measures of infectious diseases by small scale farmers. Master's thesis, Nanjing Agricultural University</li> <li>• Lin Guanghua. 2009. Characteristics and dynamics of backyard poultry in China. InterAcademy Council (IAC) Workshop on Backyard Surveillance of Emerging Infectious Diseases. Nov. 21-22, Beijing</li> <li>• Lin Guanghua. 2009. Research on environment and health: An example of IDRC-funded project on backyard poultry systems. Forum on Health, Environment and Development. Aug. 23-29, Kunming</li> </ul>	<ul style="list-style-type: none"> <li>• Drafted booklet in Vietnamese for backyard producers and other stakeholders; will translate into English</li> <li>• Leaflets for public information campaigns</li> <li>• Posters for primary schools</li> </ul>

## SOCIO-ECONOMIC IMPACT

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The socio-economic impact research team comprises researchers from China, Indonesia, Thailand and Vietnam working on the project *Socio-economic impact of HPAI outbreaks and control measures on small-scale and backyard poultry producers in Asia*. The main objective of the study is to inform the development of viable control strategies and more equitable interventions to cope with AI, especially for particularly vulnerable households, by analyzing the socio-economic impacts of AI outbreaks and AI control measures on backyard and small producers. The specific objectives include: (1) to assess and measure how the livelihoods and wellbeing of backyard and small producers are affected by AI outbreaks and different control measures; (2) to understand how backyard and small producers respond with respect to farm and market practice to AI outbreaks and different control measures; and (3) to mitigate adverse social and economic impacts of AI and AI control measures by analyzing the implications for the design and implementation of control measures and other interventions.

Regarding the main results of the research project, the following responses were received. The detailed list of research outputs is presented in Annex 4.

### China

In China, there is a tendency to treat AI as a technical and epidemic issue. Our research is the first comprehensive study in China to study the social and economic aspects impact of AI as well as control measures, and focus on the backyard and small-scale poultry producers.

We engaged the policy makers on AI control (Center on Transmissible Animal Disease Control, Ministry of Agriculture) throughout the research process, so that the research results are more likely to be able to influence the policies.

The research outputs (books, papers, regional and country reports and policy brief) from this project provided the evidence and basis for policy recommendations.

Influenced by this research, the Center on Transmissible Animal Disease Control will consider incorporating social and economic issues into the national program, and into the standard working procedures to prevent and control AI.

The APEIR network enabled the researchers to understand the AI outbreak and control in other countries, help each other improve methodologies, share findings and learn from each other, and improve the research outputs and formulate regional policy recommendations.

### Indonesia

We found in the field that AI outbreak or disease transmission is caused by insufficient regulations on the small-scale poultry industry. In the case of Indonesia, it was found that the government actually does not really know what is happening at the grassroots level. They only understand about some activities at the business level.

This research project has provided precious lessons about the AI outbreak in Indonesia that are mostly based on facts. This activity is very important for the government in term of restructuring policies for the livestock industry. For APEIR, this project showed its awareness toward developing countries on how to overcome AI outbreak. Research results should be intended to solve universal problems; therefore, the roles of government and APEIR become more effective and distinctive for the entire world.

## Vietnam

The project was able to increase the concern of all stakeholders in the poultry value chain regarding HPAI control, and to strengthen the cooperation among them to control HPAI outbreaks in small-scale poultry production areas in Vietnam. More specifically, the research team was able to achieve the following:

- Gained better understanding of how backyard and small producers respond to – and are affected by – AI outbreaks and control measures;
- Developed econometrics model on main factors affecting producers (e.g., education/training, vet services, household assets, scale of production);
- Facilitated multi-stakeholder dialog at district and commune levels;
- Formulated policy recommendations on issues such as: culling program, compensation, biosecurity;
- Developed good partnership with other country teams on methodology development and report writing;
- Gained and shared new knowledge about EID prevention and ecohealth, as well as methods and indicators for socio-economic impact evaluation;
- Submitted national report to regional team leader; and
- Plan to produce book with common findings in region (June 2010).

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## POLICY ANALYSIS

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Thailand, Indonesia and Vietnam jointly participate in the project on ***Policy analysis for pandemic influenza preparedness***. The general objective of the study is to describe the policy making process regarding antiviral drugs and poultry vaccination. The specific objectives are: (1) to define the content of antiviral drug and poultry vaccination policies in Indonesia, Thailand and Vietnam; (2) to determine the contextual factors which influence the development of antiviral drug and poultry vaccination policies; (3) to describe and analyze the process of policy making; (4) to conduct comparative analyses to describe policy, context and process differences and similarities; and (5) to determine influencing factors in policy formulation that may be important in future policy making processes.

The key reflections on the project's achievements appear below.

### Thailand

Public policy formulation is a very complex and political process; it ended up being a zero-sum game, with one win and one loss (vaccination). The country lost the opportunity to do basic scientific research on poultry vaccination.

As part of the APEIR network, it was a very nice learning process, for both technical and managerial aspects, particularly for problem solving skills, how to get things done when there are obstacles along the research path.

In each country, if the main results from all the APEIR projects were put together, it would give a very nice overall picture of how AI came along, what are the impacts, what we have learned, and what to do next.

## **Indonesia**

Engagement in the policy analysis project has enabled the principle investigator and the University of Indonesia (UI) to:

- *Improve networking with local government:* collected data on human cases of AI in three provinces in West Java;
- *Involve students in research work and workshops:* led to the publication of an article on H5N1 pandemic preparedness in the *Kompas* newspaper;
- *Present papers and posters:* e.g., at the International EcoHealth Forum in Mexico, 2008, APEIR meeting in Siem Reap, 2008;
- *Expand EID research and academic activities of UI:* proposal development and research collaboration with London School of Tropical Medicine, EcoZEID, university consortia, and others;
- *Contribute to media interactions:* interviewed about AI by national television station; provided inputs for press release after Steering Committee meeting in HCMC (May 2009) and joint statement from the ASEAN+3 Health Ministers Special Meeting on H1N1 (May 2009);
- *Contribute to journal paper:* joint paper will be submitted to *Health Policy and Planning*; and
- *Indirectly contribute to book development:* three books on health systems.

## **Vietnam**

The key research outputs from the Vietnamese project team have been the following:

- Comparative analysis of H5N1 outbreaks and policy responses in Thailand, Indonesia and Vietnam
  - No H5N1 vaccination in Thailand
  - Vietnam sent people to learn from Thai experience
  - Now moving from blanket to focus vaccination and reorganization of poultry sector in Vietnam
  - Comparison of AI policies in the three countries to be published 1/2010;
- Series of workshops to improve the knowledge of AI among stakeholders; held meetings in 6 provinces with local officials and veterinarians, interviewed farmers and producers;
- National report, publications and papers;
- Training documents; and
- Video making (in progress).

## **Technical advisor**

From the perspective of the project's technical advisor, the main achievements have been:

- Capacity development in qualitative research skills, notably skills in conceptual development and analytical approaches as well as methods in policy analysis;
- Despite a common evidence base, policy varies considerably in the three countries:
  - Results show markedly different political influences and approaches to the use of research evidence. Public health is one of many influencing factors.

- The reasons for this are complex but include: political processes of policy-making; understanding taken from research; as well as balance of public health, animal welfare, poultry producers' economic welfare, country's reputation, and international relations (e.g., with China).
- Incoherence on policies across the region may have implications for global and regional strategic planning, and the role of global, regional as well as national institutions charged with supporting control efforts.
- The principle academic output is nearing completion and will be submitted shortly to the Bulletin of WHO.

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## CONTROL MEASURES

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China, Thailand and Vietnam jointly conduct the project entitled *Studies on the effectiveness of avian influenza control measures in the Asian partnership countries*. The general objective of this study is to evaluate factors contributing to the success in prevention and control of avian influenza in the poultry sector within the study countries. The specific objectives include: (1) describe and analyze recommended measures on prevention and control of avian influenza; and (2) evaluate effectiveness of control measures applied in poultry farms.

Among the five APEIR projects, this was the last one initiated. Experience has been positive with regard to regional collaboration and interactions among country teams in developing the study methodology and exchanging information. An inception workshop was held in Chiang Mai in September 2008 to discuss the study objectives, methodology and schedule. In July 2009, a second workshop was held at China Agricultural University to share and discuss progress and preliminary findings. The final project workshop is planned for May 2010 in Vietnam.

The team is now preparing manuscripts for publication in scientific journals in the near future. They have already reported some of the preliminary project results to relevant ministries, as well as through presentations at several scientific meetings. In addition, recommendation booklets are being prepared for dissemination to the concerned government departments.

### China

This study revealed that most of the chicken farms do not have a good biosecurity plan. Based on interviews with stakeholders and observations of the farms, we found that there was a big gap between the knowledge of biosecurity and the implementation of these control measures.

Therefore, basic training of the stakeholders and their employees for biosecurity controls against poultry diseases are necessary. We have recommended to the local farmers to strengthen biosecurity control measures through training their employees. Hopefully the clinical cases will be further reduced.

Our work has raised great interest as to how the biosecurity control measures should be implemented. The practices of poultry-rearing will be improved as a result of circulation of our findings. In addition, our results will provide a solid reference for policy-making in control of infectious diseases.

## **Thailand**

The project has involved two graduate students, and has provided suggestions on AI control and prevention to local government of Chiang Mai province.

One of the key preliminary findings is that the risk of AI virus introduction to the farm premises is very high in Chiang Mai and nearby provinces. The highest risks are associated with backyard poultry and fighting cocks because control and prevention practices are not implemented in these sectors. The high prevalence of illegal cockpits is another risk factor. Commercial sectors such as broiler chickens also present moderate to high risks because although control and prevention practices exist, they are improperly implemented.

Recommendations for changing practices in backyard poultry and fighting cock rearing have been formulated and shared with local government and authorities.

The Department of Livestock Development has issued a recommendation to producers to improve biosecurity by restricting their poultry raising areas to prevent close contact with other chickens or wild birds.

## **Vietnam**

There was a long period of inactivity due to leadership change in NIVR and slow administrative process for project approval. However, field work is now planned for two selected provinces.

## **Technical advisor**

The technical advisor to the group reflected that the biggest challenge has been to get the team to work outside their normal areas of expertise – given that it is not possible to assess control measures without examining how measures have been implemented in the field. This has taken the team outside of its comfort zone, and was a challenge for the individual country teams. Nevertheless it was also important to ensure that those who are based mainly in laboratories spent more time in the field to see what is really happening with application of control measures: this was a major benefit from their engagement in the project.

The study has confirmed, through its research that the measures suggested for control and prevention of avian influenza are not always implemented as well as authorities would like to believe and may not be having quite the effect they should. This project will provide solid evidence of the extent to which the measures are being implemented and how well they are being done.

## BEYOND SCIENTIFIC RESULTS

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While the five APEIR research projects have generated a significant body of quality research achievements in a relatively short time – as summarized in the previous section – there have also been important outcomes and emerging impacts beyond the scientific findings of the research work. The self-reflection process enabled the identification of many important non-scientific outcomes, impacts and pathways for putting research findings into practice and policy.

### BROADER OUTCOMES

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The following were considered by APEIR colleagues to be important outcomes beyond the scientific findings of the research projects:

#### **Learning platform**

- In forming a research network on EIDs among five Asian countries, APEIR provided a mechanism so that the cross-country teams can learn from each other, share findings, make comparisons, and improve the research quality.
- APEIR provided a mechanism so that the researchers can look at AI issues from different angles and levels, such as technical aspect, policy aspect, social and economic aspect, as well as at country, regional, and international levels.
  - In China, the research generated interest from the academy and the policy makers about the social and economic aspects of AI and AI control measures.
- APEIR differs from many other donor agencies in that it enables the direct use of research results for activities with the community in order to find solutions. By doing that, APEIR contributions are concrete, and support the goal that research should be conducted for development.
- APEIR introduced ecohealth approach and principles, which could be understood and applied effectively by researchers and other stakeholders. It has also increased the interest of governments in EID research from an ecohealth perspective.
- Combining relevant research approaches and methods (e.g., questionnaire, focus group discussions and Q-methods) strengthened the findings.

#### **Multidisciplinary research partnership and collective social capital**

- APEIR is an extremely valuable network. In our work in SE Asia we have found it to be an invaluable structure to support and enhance collaboration. It is inclusive and brings together people from multiple countries, institutions, and disciplines but with a unifying, over-arching aim. It is an exceptional example of collaboration that is also, critically, addressing research questions of importance to policy makers and involves all in strategy. Other regions of the world could learn a great deal.

- APEIR has successfully been able to motivate research partnership on various aspects of EIDs in Asia. This particular social capital needs to be improved in the future. As the same research is conducted in different countries and different systems of government, everybody can learn from and complement each other.
- The regional research teams have gelled relatively well. It has taken much more face-to-face contact than anticipated, but by and large they are collaborating effectively across the borders.
- Research partnership has been implemented, which in case of Indonesia is impossible to do without assistance from donors. This partnership will always generate outcomes compared to individual research, which generally face difficulties such as money as well as expertise.

### **Network structure**

- The way APEIR research teams were originally constituted was considered an exceptionally “democratic/competitive” exercise (at least in Thailand). This model and the “institutionalization” of APEIR SC, seem to be appreciated as innovative and eventually a major achievement in itself. Some APEIR researchers considered this structure, which could influence regional research agendas and processes, even more important and promising than the actual research outcomes. Moreover, funding-opportunities are often not considered as the major incentive for joining APEIR.
- With time, the CO also has carved out a somewhat awkward (with coordinators based in Thailand and Vietnam), but relatively effective way of working. I am regularly struck by the amount of independent activity that the coordinators are undertaking for APEIR.
- One key defining characteristic is that APEIR is led and implemented by people from the region. Consultants are engaged but in a supporting role. IDRC may play a bigger role than it feels it should, but it is still a supportive role. Most research on EIDs has been undertaken by Northern researchers and consultants for international organizations (with the regional researchers in a secondary role).
- For IDRC, APEIR is, or holds the promise of becoming, the center piece of its EID work in the region. This is partly because the most meaningful role for IDRC is not just to fund research on important topics (which is done by many others), but to ensure that regional/Southern voices are amplified and inserted into international processes, and that, in the long term, the debate can shift more towards a Southern perspective.

### **Capacity building**

- The China team sponsored by this IDRC program was strongly improved and trained for the future preparedness for AIVs and other EIDs.
- In addition to knowledge generation, an opportunity to create and expand networks of people working in this multi-disciplinary area is quite important and could sustain long term country development. This project also builds up capacity of HSRI staff in terms of technical and management competency.

### **Engagement with national and local stakeholders**

- Developed partnership within country: more intensive relationship with the veterinary administration in provincial and local levels.
- Key stakeholders such village leaders have different responses, depend on the village situation and feeling, mostly influence by local politics.
- Policy recommendations from communities and local level are important.
- Building the cooperation and relationship among partner organizations within Thailand: regular meetings of Thai APEIR Network, a report on progress of project to the HSRI board chaired by the Health Minister.

### **Policy influence**

- Influencing policy makers is a challenge, especially at the high level. In Thailand, one Steering Committee member is in a very influential position, therefore research outputs could be channeled for policy changes.
- The socio-economic impact study group in China was able to engage the leader of the Center on Transmissible Animal Disease Control, Ministry of Agriculture, as the Chair of the Steering Committee for this research, which has built up an effective channel to communicate the policy recommendations.
- APEIR has enabled collaboration between scientists and the local policy makers (e.g., working in Qinghai Lake, China).
- It has also facilitated feedback between backyard stakeholders and policy makers.

### **Unintended or unexpected outcomes**

- The overall partnership, as represented by the SC and CO and related processes (especially the SC and All-APEIR meetings), has been unexpectedly successful. It almost leads a life of its own. But APEIR has, within a short period, really become an entity in its own right, even if it is still fragile, engagement differs by person, and various obstacles are present.
- Development of self-testing and innovation seems possible in some villages; scaling up of research results at village level is possible (e.g., acceptance of poultry mobile unit, self-initiative to routinely use germicidal spray).
- Project management skills, from starting point through implementation, can be applied to other projects.
- An initiative to develop a Thai research program for disease surveillance, prevention and control system based on participation of local authorities.
- Through its involvement in the APEIR network, LIPI was able to accelerate the establishment of bird banding schemes in Indonesia.

- 25th International Ornithological Conference (Brazil, August 2010): The Chinese wild birds PI is playing a leading role as convener on EID in wild birds, and through the project has invited the Indonesian PI to be part of the panel to present her work.
- The work of the wild birds surveillance network is very imperfect. There are many things that they just began to do as the two-year support ended, like the spatial and ecological analysis, or the building of a common database and web-communications. But the money they got was rather small, and challenges rather high. That they want to continue is an important outcome. That they are taking steps to increase attention to the quality of their work is also very promising. But it will take time.
- The control measures team is struggling with a challenging conceptual framework and inexperience in qualitative research, touching a particularly sensitive issue: the impacts of actual control measures on risk pathways for AI.
  - The Chinese team has shifted focus from “vaccination” as the main control measure towards appreciating the potential and limitations of biosecurity measures. They have also become aware of marked discrepancy between regulations and reality: the fact that backyard systems do exist in China and households are actually engaged in poultry-production.
  - The Thai team has been advocating for community and district-level initiatives to organize control measures in a practical and adapted way. Present control policies and institutional frameworks in Thailand seem to be rather top-down. The research team has developed a very intensive level of contact with communities and local organizations, and has become a channel for advocacy and feedback from communities to policy level. This is an unintended, but very important, outcome that reflects the ecohealth approach.
- APEIR researchers appreciate the opportunity to “match lab with real world” and to be part of a trust-based regional network. Research-results produced so far are generally perceived as highly relevant for policy information, but some topics are very sensitive. Each research team seems to be developing some protective strategy, and APEIR SC certainly has an important role vis-à-vis how to address sensitive research findings.

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## EMERGING IMPACTS

From the perspective of colleagues who took part in the self-reflection exercise, APEIR projects have already helped bring about many emerging impacts and significant changes – at different levels, including the following.

### **Researcher level**

- APEIR projects introduced relevant concept and approach for EID prevention, control and mitigation to local researchers and related stakeholders.
- The researchers gained better experience in conducting multi-country, multidisciplinary projects, as well as new knowledge about EID prevention and ecohealth.

- Researchers are now part of regional research teams. And they are focusing on research that addresses aspects of EIDs that they would otherwise not have focused on, in more-or-less multidisciplinary ways. For example, people who were vaccine experts (lab bench scientists) are now examining how sets of control measures operate in the real world (more social science than anything else).
- Countries with stronger research systems can assist the development of counterparts in weaker countries – everyone is learning from each other in a very constructive way.
- Innovative methods have been developed and tested for various field work, data analysis and impact evaluation.

### **Farmer and producer level**

- The most significant change that took place among farmers is the change from negative to positive understanding towards small-scale poultry enterprise. These facts will give stakeholders leverage to demand for appropriate policies, so nobody will suffer.
- Demonstrated the effectiveness of controlling EIDs through active and empowered networking, with participation base on community self-reliance.
- Poultry producers have developed highly ingenious approaches to protect their poultry production from infectious diseases, which could be further investigated to identify viable and low-cost models adapted to diverse local contexts. However, these may not be compatible with current legal/regulatory frameworks. The “risk pathways” concept offers an excellent entry point for providing useful feedback to interviewed stakeholders and building trust with target groups.

### **Policy level**

- For the policy and decision makers, the network has broadened the EID control concept, particularly those regarded as “without borders.”
- The combination of policy and research is extremely important for establishing a strong regional voice in international EID control debates, and important for attracting and directing future donor investments in ways that the countries need and want.
- Collaboration with APEIR was explicitly mentioned in the Joint Ministerial Statement that emerged from the ASEAN+3 Health Ministers Special Meeting on H1N1 held May 2009 in Bangkok.
- Some APEIR members serve on high-level national committees or expert panels on EIDs (e.g., in Vietnam, Indonesia and Thailand), which enables them to share the ecohealth approach and relevant research findings to inform and influence policy.
- APEIR project helped government better understand the situation of backyard poultry, the behavior of farmers and the difficulties and possible ways to change their behavior.
- The project will provide guidance to Agricultural Ministries on the benefits and pitfalls of specific control and preventive measures. Much of what they will discover is probably already recognized or thought to occur anyway, but to have the observations on various

control measures laid out in a more structured form will be beneficial. I have used the experiences from this project in shaping advice to Agriculture Ministries in Asia, both in terms of field observations as well as in developing veterinary services.

- The results of this study have been used in AI control policy setting for Chiang Mai province and the regional Bureau of Animal Health and Sanitation.
- Influenced by the research, the Center on Transmissible Animal Disease Control, Ministry of Agriculture of China will consider social and economic issues into the national program and the standard working procedures to prevent and control AI.
- The application of lessons learned as a result of implementing this pilot project in Cambodia is expected, particularly with respect to assessing capacity constraints and defining training priorities in succeeding phases of this program in an effort to further strengthen capacities to sustain surveillance and monitoring activities.

### **International partner level**

- Awareness of differences in policy formulation by, amongst others, UN SIC and WHO and FAO, helps multilateral agencies such as these in the pursuit of a conceptual and strategic framework to address EIDs.

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## **SWOT ANALYSIS OF APEIR**

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Analyzing the internal strengths and weaknesses of APEIR, together with identifying opportunities and threats in the external environment, was an important and valuable part of the self-reflection process. SWOT analysis was part of: (1) the key questions sent to APEIR contacts; (2) the wild birds meeting in Siem Reap; and (3) the 14<sup>th</sup> Thai APEIR Network meeting. Combined with the SWOT analysis conducted during the APEIR strategic planning process in 2009, the following picture emerges.

### **Strengths**

- + Informal and flexible research network formed based on trust among members
- + High-level, multi-country, multi-stakeholder, multi-disciplinary initiative with key EID institutions, researchers, stakeholders and champions collaborating at the policy-research interface
- + Ecohealth focus (addressing EIDs as development issues) and cross-country approaches underpin partnership
- + Research projects designed and implemented based on country and regional priorities, and undertaken by competent and responsible research teams from the region
- + Combination of researchers and government officials supports the move from knowledge generation to evidence-based policy making
- + Steering Committee members have performed well, with a high degree of commitment, especially from the Chairs
- + Effective regional coordination and strong research project leaders at country level
- + HSRI plays important role in coordination of Thai research teams; 14 Thai APEIR Network meetings already convened

- + Innovative collaboration and partnership: encourage researchers' creativity and independence without interference; rational and efficient use of research funds
- + IDRC resource persons provide important and helpful guidance to regional teams in identifying research issues, developing methodologies, and presenting results.

### **Weaknesses**

- Need to improve communication of APEIR presence and strengths, clarity about its purpose/vision, and breadth as well as depth of affiliates
- APEIR is new, not yet well-known /recognized; administrative capacity is slim
- Lack of fund-raising plans and capacity, and absence of long-term funding commitments
- Limited capacity: there is a need to strengthen national colleagues through long-term formal training; capacity building should be an integrated part of the projects
- English writing skills for publications are weak with some members
- Challenge of cross-country approach: limited post-meeting follow-up actions
- Limited ability to respond to major opportunities and to identify new lines of work
- Lack of communications among research teams/themes at national and regional levels
- Need to enhance coordination among different country teams to follow same research methodologies and agenda; also need practical policy and mechanism for data sharing among partners
- Lack of integration among different APEIR projects limits impacts to target beneficiaries
- Policy-related outcomes and impact are very limited up to now
- Country-level networking of research teams very weak, except in Thailand
- Engagement in APEIR is very time-consuming due to too many technical meetings, within projects as well as among projects and countries
- Limited role of Steering Committee in the research process; general bias towards health sector; some dependency on outsider ideas

### **Opportunities**

- + Emergence of H1N1 pandemic increases relevance of APEIR and demand for its work and findings
- + Many government policies give high priority for AI and EIDs
- + More donors and international partners are potentially willing to support the network and EID research projects; new programs and projects (e.g., EcoEID, EcoZEID) provide ample opportunities for APEIR collaboration
- + The opportunity for APEIR is vast: existing international collaborative platforms are relatively weak, lacking proper engagement with regional researchers. The APEIR process of facilitating regional researchers to work in a bottom-up approach gives the network an opportunity to expand in a healthy way.
- + Regional research linkages have been established and researchers well-positioned to collaborate on future issues such as policy-relevant, socio-economic aspects of EIDs
- + Opportunity for APEIR to develop mutual collaboration with FAO, ACIAR, ILRI, USAID, AUSAID, WHO and others to avoid overlapping activities and support each other
- + Enhanced credibility resulting from recognition of APEIR by ASEAN+3 Health Ministers Special Meeting on H1N1 (May 2009, Bangkok)

- + Emerging ThaiHealth program on disease surveillance and control of EIDs includes support for strengthening research network

### **Threats**

- Changing government policies and high-level executives; EIDs are still low priority in some countries
- Donors' interests change frequently and funding priorities keep shifting
- Single donor support base is potentially fragile and needs to be expanded to ensure network sustainability
- Global economic downturn may result in fewer resources to support networking
- Funding agencies may be more interested in well-known persons and more established organizations/networks
- The biggest threat is that the field of EIDs is becoming very crowded; more competitors, more research groups involved in environment and health research
- Transborder disease transmission and unknown transborder route of transmission: rapidly changing EID problems likely to move faster than APEIR process; may be good strategy for APEIR to set up an emergency mechanism to respond to EIDs

Following the suggestion of Dr. Amin made during the self-reflection session in Kunming, the many SWOT findings have been consolidated into these major points:

<p><b><i>Strengths</i></b></p> <ul style="list-style-type: none"> <li>+ <u><i>Nature of network</i></u>: trust-based, informal, flexible, bottom-up, multi-country, multi-disciplinary, multi-sectoral, regional priorities focus, regionally led and implemented, researchers and government officials working at the research-policy interface, independent</li> <li>+ <u><i>Performance of management mechanisms and arrangements</i></u>: Steering Committee, Chairs, Coordinating Office, project leaders, HSRI, IDRC all have contributed well to success</li> <li>+ <u><i>Concepts and approaches</i></u>: Ecohealth concepts and cross-country approaches are relevant and underpin partnership</li> </ul>	<p><b><i>Opportunities</i></b></p> <ul style="list-style-type: none"> <li>+ <u><i>Expanding partnerships</i></u>: Ample opportunities with international donors, national governments, regional and international organizations, other related networks and partners; amplified by H1N1 situation</li> <li>+ <u><i>Enhanced credibility</i></u>: recognition of APEIR by ASEAN+3 Health Ministers Special Meeting on H1N1 (May 2009, Bangkok)</li> </ul>
<p><b><i>Weaknesses</i></b></p> <ul style="list-style-type: none"> <li>– <u><i>Communications</i></u>: both internal and external processes and products</li> <li>– <u><i>Capacity</i></u>: various aspects need improvement</li> <li>– <u><i>Funding</i></u>: donor base and fundraising capability limited</li> <li>– <u><i>Country-level networking</i></u>: sharing among projects and partners limited (except in Thailand)</li> <li>– <u><i>Lack of performance of current arrangements</i></u>: weak follow-up between meetings, slow response to opportunities, limited integration among country projects, limited Steering Committee role in research</li> <li>– <u><i>Policy influence</i></u>: limited impact to date</li> </ul>	<p><b><i>Threats</i></b></p> <ul style="list-style-type: none"> <li>– <u><i>Funding uncertainties</i></u>: shifting donor priorities, fragile single-donor support base, global economic downturn, more interest in well-known researchers and networks</li> <li>– <u><i>Government dynamics</i></u>: changing government policies and personnel</li> <li>– <u><i>Crowded field</i></u>: many competitors emerging as EID field grows and attracts more interest</li> </ul>

## INDICATORS OF A STRONG NATIONAL NETWORK

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The self-reflection process revealed that many APEIR colleagues outside of Thailand have a desire to develop national networks and mechanisms for sharing information and facilitating collaborating among researchers, policymakers and other EID stakeholders. Therefore, the experiences and insights emerging from the Thai APEIR Network may be very useful for other countries as APEIR moves forward in its next phase of work and evolution.

Based on the Thai APEIR SWOT analysis, the following indicators of a strong and effective national network may be derived:

- + Strong and active collective leadership, with effective and supportive coordination and regular network meetings
- + Diverse membership (across multiple sectors, disciplines and stakeholders) willing to work in teams, provide peer support, make commitments, take responsibilities and deliver results
- + Shared vision and common identify to unite members and build collective social capital
- + Availability of some domestic funding and resources to support network
- + Independent status to conduct research, without government or political interference

## FUTURE NICHE, ROLES & FUNCTIONS

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APEIR at 3 is at a crossroads. The SWOT results clearly indicated the strengths of the partnership, the weaknesses it needs to address, and the opportunities as well as threats arising from external players, factors and dynamics. One colleague also expressed the view that we can improve APEIR by using the information from the SWOT analysis. The overall implication is that APEIR will need to continue evolving and delivering on its research agenda, while simultaneously tackling challenges and processes related to organizational and capacity development as well as network governance.

The self-reflection responses provided an array of valuable perceptions and ideas about what APEIR's niche should be in the future. Overall, this niche encompasses:

- *Generating and managing knowledge*: conducting practical research that focuses on transboundary problems, and effectively communicating results
- *Building capacity* of researchers, communities, policy makers and other stakeholders
- *Advocating* for appropriate social and policy responses; *influencing* policy and practice
- *Networking* at community, national, regional and international levels; *convening* multi-stakeholder processes

With reference to the network's desired roles and functions in the coming years, key ideas put forth by APEIR members included the following.

### **Continuing symbol of mutual friendship**

- APEIR should continue its role as a symbol of mutual friendship among member countries. From its R&D activities, APEIR will continuously assist member countries and the rest of the world in EID problem-solving. In addition, APEIR will also provide governments with practical recommendations so that policies always give small-scale producers a better chance to develop.

### **Playing to its strengths**

- APEIR should continue as an important international platform for people from different partner countries to share knowledge and messages, as well as to build and sustain research collaboration on EIDs.
- APEIR should have a five-year strategy with targets that are measurable and linked to its purpose. This means harnessing its links with partners, being part of larger projects and programs, building a sustained funding base, and having a very clear 'brand' where it is not competing but playing to its strengths.
- APEIR will reflect the collaborative attitudes among member countries, which is voluntary and based on their interests and needs. This collaboration should not be limited only to R&D, but should also include technology transfer, human resource development and sharing of infrastructure regarding ecohealth and EIDs.
- Continuous investment in collaborative research and capacity building is needed to strengthen the network.

### **Going beyond research: communications and dissemination**

- APEIR should establish a knowledge center to pool, exchange and disseminate knowledge, research findings, and experiences.
- The coming year should focus on dissemination to add value to the findings from the five research projects by: developing a range of communication products for policy makers, practitioners and grassroots-level stakeholders through writeshops, updated website and other means; and recruiting volunteers (e.g., from VSO) to assist with these tasks;
- APEIR activities should not be limited to conducting research, but should also consider its socialization, dissemination and implication processes.

### **Developing community-level surveillance and models**

- EID research must serve the needs of farmers and fit into their lifestyles and practices. Building up a research team at community level (including local farmers) will accelerate and improve the "translation process" of putting research findings into practice.
- We need research on the development and pilot testing of community-based mechanisms to prevent and control epidemic diseases. Models involving the community should be developed to follow-up on research results by APEIR, building upon the work that has been previously done.
- EID research priorities should be identified based on potential impacts to the community. After research is conducted, socialization, dissemination and action should follow; future APEIR projects should support pilot activities (for at least five years) in sampled communities in collaboration with local governments.
- Continuous surveillance (formal and informal) is the key for EID so we know what is going to happen and act accordingly. But it has to be carried out at the community level as well, and not only by central governments. APEIR can play a leading role in EID prevention by building up community surveillance capacity.

### **Focusing on the research-policy interface**

- APEIR should facilitate research endeavors that address explicit policy-relevant questions in a timely manner. In the process, it can help develop a cadre of 'policy-literate' researchers, and 'research-literate' policy makers.
- Improve the intensity (rather than prolonged length) of the research activity, to enable "real time" recommendations for emerging situations and problems.
- Target policy makers as the primary users of research findings, address their specific interests, and disseminate research findings to policy makers in user-friendly ways.
- Policy-explicit EID research is needed, especially on the surveillance system. APEIR's role is to provide platforms for: raising funds to support projects that focus on better ways to prevent and mitigate possible harm from EIDs; facilitating communications among EID researchers; and disseminating research findings of policy-related EID studies conducted by APEIR partners and others.
- APEIR's role should go beyond technical knowledge expertise to include socio-economic and political aspects, and providing comprehensive consultation and advice to policy makers on EID issues.
- Apart from visible outputs, interesting models of research-policy transfer mechanisms (both ways) have been developed by different APEIR teams. For example, the socio-

economic research group in China has established a kind of regional stewardship committee, integrating members from the policy level to community stakeholders. Different models exist and should be exploited systematically by APEIR in the future.

### **Targeting national governments and regional organizations**

- Target national governments and regional organizations (e.g., ASEAN+3, APEC) as key users of research findings.

### **Revitalizing the Steering Committee**

- Evolve from Steering to “Doing” Committee: SC members need to do more to influence people in their own countries; should also monitor or supervise research projects/themes that are within their own areas of expertise.
- SC needs to be revitalized: members should have criteria that include strong research values and motivation as well as policy influence. As there are two SC members from each APEIR country, one should be selected from research and the other from the policy arena to ensure vital linkages and interface.
- For division of functions, consider having a Steering Committee and a separate Scientific Committee – along the lines of PRISE, a Vietnamese-French consortium on risks associated with livestock intensification.
- A key-role for the SC is in transferring findings from policy research and analysis, especially because some sensitive topics are targeted by APEIR research. This may require some diplomatic packaging and very strong evidence base. Eventually, the SC needs to be able to “request” specific research to provide rapid evidence for specific topics/strategic gaps. This would need a new funding mechanism, as well as increased funding autonomy of APEIR SC.
  - A scoping of donors needs to be done and working relationships for advocacy and leverage need to be established with various partners and donors. Enhancing advocacy and leveraging capabilities could be a more explicit outcome expected during the next 2-3 year period of APEIR activity.

### **Establishing or linking with national networks**

- Some countries, such as Vietnam, feel the need to establish national APEIR networks in the future to facilitate in-country information sharing and research collaboration.
- In the case of Indonesia, a better strategy may be to work with existing networks, e.g., the Indonesia Zoonotic Network (INDOZOONE) has nearly 300 members.

### **Aiming research at the greatest risks**

- As the EID field is already very crowded, APEIR needs to find specific niches not well covered by others. It is likely that new zoonotic EIDs are somewhat overrated as causes of loss for livestock owners. In some cases the response to the EID has been worse than the disease itself (e.g., the case with H5N1 HPAI in 2004).
  - APEIR should be taking a holistic approach regarding the effects of ecological changes on livelihoods – perhaps with less focus on new EIDs and more on the issues that will result in the greatest losses to smallholders and the poor in vulnerable places such as the Mekong Delta. These may well be existing diseases.

- Severe new zoonotic EIDs that have major global effects (when measured in impacts on health) are relatively rare events (HIV-AIDS was the last one). Even without changes in patterns of infectious diseases, we are facing a global catastrophe in the next 30 years as climate change, soil loss, water scarcity, increased population and food shortages take their toll on people living in high risk areas. This still requires an ecohealth approach but it should be more inclusive covering not just new infectious diseases.
- APEIR can use its skills to assess and rank the risks facing these communities and focus on those factors (EID or others) that are going to have the greatest impact on livelihoods and well-being.
- Many of the technical solutions to EIDs are already available but not implemented. Understanding the reasons why control and preventive measures are not implemented could be a focus for APEIR.
- APEIR should consider EID as but one of the issues that communities will face in the next 30 years, and ensure that research is aimed at the greatest risks.

### **Addressing the big-picture challenges**

- The ambitions of the network (e.g., recognized center of excellence in EID, regional policy impact, expanding membership) need to be balanced with a convincing track record of outcomes and a stronger internal organization, including:
  - Define clearer roles, responsibilities and *modus operandi* for APEIR structure
  - Better correspond overall structure with mandates and functions
  - Strengthen interface with partners (Coordinating Office role)
  - Clarify the relationship between SC and research teams
- APEIR internal organization, resilience of funding, and scope and values have repeatedly been discussed, but not yet translated into structure, strategy and communication. Some key elements include:
  - Improve visibility (publications, media, conferences) and social capital
  - Enlarge ownership: achieve institutional and country policy level “buy-in”
  - Carefully enlarge regional commitments: integrate Laos, strengthen Cambodia
  - Consolidate modes of delivery, governance and internal leadership among countries and teams;
  - Diversify funding base: operational funds still limited to IDRC; prospects include AusAID-IDRC, google.org PnP challenge fund, ILRI participatory surveillance and networks, ASEAN+3, Rockefeller Foundation, Mekong Basin Disease Surveillance Network, WHO, IHSR
  - From reactive to proactive: shift from a reactive disease-specific approach to a more strategic, proactive generic approach – delivering relevant and timely information to inform policy and to achieve impact
- The common pandemic preparedness and response frameworks rarely tackle the development dimension of EIDs; they do not adequately address the causal webs upstream of EID events or the vulnerabilities of people and entire regions. Tackling such complex issues effectively and efficiently will require long-term and large-scale investments and research efforts. This is a key challenge for APEIR strategy and structure.

## TOWARDS AN APEIR M&E MECHANISM

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One objective of the self-reflection exercise was to inform and strengthen the internal strategy development of APEIR, and more specifically its future monitoring and evaluation mechanism, which the Coordinating Office and APEIR members will utilize to gauge the progress and impact of future activities toward attaining the APEIR objectives and desired outcomes.

Based on the experience and insight gained through the self-reflection process, the following approaches, tools and processes may be considered for inclusion into the future APEIR M&E mechanism.

### **Self-reflection**

The current exercise reinforces the high value and relevance of a self-reflection approach for assessing past achievements, current strengths and weaknesses, as well as articulating future directions of the network. The combination of in-person interactions (with the wild birds regional research team, the Thai APEIR Network, and the Vietnamese research teams), written responses to the key questions, and Skype conversations yielded a rich and useful array of information and perspectives.

This approach also engendered a high degree of ownership, openness and critical thinking among the members who participated, which is very different than the usual experience with external program or project evaluations.

In hindsight, perhaps 10 key questions were too many to include in a single exercise. To streamline the process and to sharpen the reflections and responses, it is suggested that a fewer number of more focused questions be developed for future self-reflection purposes (see Annex 5).

Other advantages of this approach include simplicity and flexibility. Based on their involvement in this process, Coordinating Office colleagues should be able to lead such an exercise in the future. Different sets of self-reflection questions could also be developed for various APEIR entities: for example, questions related to achievements could be tailored for research teams, while those on network governance could be formulated for Steering Committee members and donors.

### **SWOT**

As an integral part of the self-reflection process, or as a stand-alone tool, SWOT analysis is also recommended. The scanning of the internal environment (in terms of strengths and weaknesses of the network) as well as external opportunities and threats provides a balanced assessment.

The results can be used for different purposes: as positive reinforcement (appreciation of collective strengths and social capital); as indicators for organizational or capacity development to remedy perceived weaknesses; and as a way to flag opportunities to be seized or threats to be avoided in the external environment.

Comparing results from periodic SWOT exercises would also reveal aspects that have remained static over time as well as things that have changed (for better or worse). This could be useful for management purposes, and for developing further remedial action if needed.

## **Outcome Mapping**

For well over a decade, IDRC and partners have been pioneering and supporting conceptual and development work on Outcome Mapping, which concentrates on monitoring and evaluating a program's results in terms of changes in the behavior of direct partners (please visit [http://www.idrc.ca/en/ev-26586-201-1-DO\\_TOPIC.html](http://www.idrc.ca/en/ev-26586-201-1-DO_TOPIC.html) and <http://www.outcomemapping.ca/> for details).

The central concept is that, at its essence, development is accomplished through changes in the behavior of people. The full methodology includes three stages: intentional design, outcome and performance monitoring, and evaluation planning. Outcome Mapping encourages a program to introduce M&E considerations at the planning stage, and link them to program implementation and management. However, it has elements and tools that can be adapted and used separately.

For future APEIR projects, such as the set that will be proposed in Kunming for the next phase of the network, it is recommended that Outcome Mapping be introduced during the project planning stage, when partners can work together to define the actors they wish to target, the changes they hope to see, and the strategies they will employ to bring out the desired outcomes. IDRC staff or consultants familiar with Outcome Mapping could be brought in as resource persons to assist research teams in this process.

## **Network functions approach**

*What do networks actually do, and how do they work?* To help answer this question, ODI and partners have developed and tested the network functions approach (NFA), a simple yet powerful methodology originally used within the context of humanitarian aid networks (visit <http://www.odi.org.uk/resources/download/579.pdf> for background note on NFA).

Like people, a network also goes through a lifecycle, throughout which it attempts to maintain and sustain relevance for its members. NFA helps members to analyze the functions performed by their network, how well it performs them, and how the network should adapt to internal dynamics and external changes.

In the humanitarian sector, there are six overlapping functions that networks perform to various degrees: *community-building; filtering information; amplifying messages; learning and facilitating; investing and providing; and convening*. For a research network such as APEIR, some of these may have to be modified to reflect the strong knowledge generation and management function that is at the heart of what APEIR does.

As the new APEIR strategic plan (for 2010-2013) is about to be rolled out, this would be an opportune time to consider using NFA as a management tool to revisit the strategic priorities of APEIR, and to analyze the current functional focus of the network compared to the ideal functional balance.

## ANNEX 1. APEIR SELF-REFLECTION EXERCISE KEY CONTACTS

	<i>Cambodia</i>	<i>China</i>	<i>Indonesia</i>	<i>Thailand</i>	<i>Vietnam</i>	<i>IDRC *</i>	<i>Interactive modes with key contacts</i>
<b>Wild birds</b>	Chheang Dany	Lei Fumin	Dewi Malia	<b>Parntep Ratanakorn</b>	Nguyen Tien Dzung		E-mail guidelines/questions; Siem Reap meeting 4-7 Dec: two self-reflection sessions
<b>Socio-economic impact</b>		<b>Libin Wang</b>	Edi Basuno	Thanis Damrongwatana pokin	Nguyen Ngoc Que		E-mail guidelines/questions
<b>Policy analysis</b>			Wiku Adisasmito	<b>Petcharat Pongcharoensuk</b> Pornpit Silkavute	Le Minh Sat		E-mail guidelines/questions; follow-up on Skype
<b>Backyard poultry</b>	Khieu Borin	Lin Guanghua		<b>Kreingkrai Choprakarn</b>	Vu Chi Cuong		E-mail guidelines/questions
<b>Control measures</b>		<b>Shijun Zheng (Sam)</b>		Suvichai Rojanastian	Nguyen Viet Khong		E-mail guidelines/questions
<b>Steering Committee</b>	Kao Phal Sok Touch	Duan Ziyuan Wenjun Liu (Frank)	<b>Amin Soebandrio</b> Wiku Adisasmito	Suwit Wibulpolprasert Prasit Palitpolkarnpim Pongpisut Jongudomsuk	Nguyen Thi Kim Tien Le Minh Sat	Dominique Charron	E-mail guidelines/questions; further interactions at All-APEIR meeting 13-16 Jan
<b>Country focal persons</b>	Kao Phal	Lei Sun	Wiku Adisasmito	Pornpit Silkavute	Le Minh Sat		Thai APEIR meeting 9 Dec; VN visit 10-16 Dec; E-mail with others
<b>Coordinating Office</b>				Pornpit Silkavute	Dinh Xuan Tung		In-person, e-mail and Skype communications

\* Key contacts also included IDRC staff and consultants: Hein Mallee, Andrés Sanchez, Martin Wiese, Richard Coker, David Waltner Toews, Les Sims

**(Regional team leaders/SC Chair in bold)**

## ANNEX 2. SELF-REFLECTION GUIDELINES AND QUESTIONS

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### OBJECTIVES

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After three years of working hard to build our partnership, it is now time to reflect upon and consolidate the substance of progress, achievements and challenges as we look into the future. Therefore, the APEIR Steering Committee has decided to implement a self-reflection exercise, with these objectives in mind:

- To build up the track record and the social capital of APEIR in a systematic, participatory and self-reflective way.
- To contribute toward building a coherent APEIR 'story-line' feeding into the development of a communication and fundraising-strategy by APEIR.
- To inform and strengthen the internal strategy development of APEIR and more specifically its future M&E mechanism.

The results from this exercise will be shared and discussed at the All-APEIR Meeting to be held in Kunming during 13-16 January 2009. Moreover, the self-reflection process and outcomes will be very valuable for guiding the development of the partnership and the implementation of the new APEIR strategic plan.

### PROCESS

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A consultant (Mr. Chun Lai) has been engaged to help facilitate the self-reflection process among APEIR partners: research project leaders in each country, country focal persons, Steering Committee members, Coordination Office (CO) and IDRC.

Some key questions (see next section) have been developed to guide this process, and to stimulate both quantitative as well as qualitative information and responses. There will be opportunities for the consultant and CO to meet and interact with various APEIR partners during these upcoming events:

- Wild birds research team workshop, 5-7 December, Siem Reap;
- Thai APEIR meeting, 9 December, Bangkok;
- Visit to Viet Nam, 10-16 December, Hanoi; and
- All-APEIR + 3 Partners Meeting, 13-16 January, Kunming.

In addition to these in-person meetings, the consultant will also contact APEIR colleagues by e-mail and/or Skype as an integral part of the self-reflection process.

### KEY QUESTIONS

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**Regarding APEIR achievements (results, outputs, outcomes and impacts from your project and your participation in APEIR):**

1. What do you consider to be the main results of your research project in your country and as part of the APEIR network?

2. Please provide a list (as complete as possible) with all outputs produced within your APEIR research project (at country, region and international levels), including:
  - Publications and papers (national, regional, international)
  - Communications (e.g., press releases, TV/radio interviews)
  - Providing advice to governments or other stakeholders
  - Facilitating dialog among stakeholders at different levels (e.g., feedback from communities or grassroots level to higher-level policy makers)
  - Public awareness raising
  - Other outputs?
  
3. What do you consider to be important outcomes beyond the scientific findings of your research?
  - Please reflect upon your membership in APEIR in terms of broader outcomes such as developing partnerships, improving team dynamics, engaging key stakeholders, influencing policy and practice, increasing motivation and interest in EIDs, and changes in the ways different actors (e.g. farmers, scientists, decision makers) go about their business in preventing and/or controlling these diseases.
  - Other outcomes (e.g., unintended, spin-off, scaling-up)?
  
4. What do you consider are the most significant changes that your APEIR project helped bring about?
  - Please think about contributions to new knowledge, policy or practice related to EID prevention, control and mitigation, or even about the way to do research on these.

**Regarding experiences and lessons learned from the partnership:**

5. What do you consider to be the main strengths and weaknesses (internal to APEIR), as well as opportunities and threats (external to APEIR) from your experience so far? What would you wish you could change/improve?
  
6. What are most significant results (“striking facts or findings”) from your project, and how could they be linked to those from other projects?

7. How can we establish, accelerate and improve the "translation process" of putting research findings into practice and policy?

**Regarding the future roles and functions of APEIR network:**

8. What would be your key messages to different stakeholders (e.g., specific ministries, general public, other stakeholders) concerning the type of research needed on EIDs and the role of APEIR in this work?
9. What should the APEIR "brand" mean in the future? (In other words, what would you like people to think when you tell them that your research is part of APEIR's work?)
10. How can APEIR gain more momentum and better reputation as a major source of expertise, evidence and advice for EID policy and practice in the future?

## ANNEX 3. WILD BIRDS PROJECT OUTPUTS

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### THAILAND

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#### **Publications**

- 1) Siengsanon J, Chaichoune K, Phonaknguen R, Sariya L, Prompiram P, Kocharin W, et al. 2009. Comparison of outbreaks of H5N1 highly pathogenic avian influenza in wild birds and poultry in Thailand. *J Wildl Dis*, 45(3):740-7.
- 2) Chaichoune K, Wiriyarat W, Thitithanyanont A, Phonarknguen R, Sariya L, Suwanpakdee S, et al. 2009. Indigenous sources of 2007-2008 H5N1 avian influenza outbreaks in Thailand. *J Gen Virol*, 90(Pt 1):216-22.
- 3) Uchida Y, Chaichoune K, Wiriyarat W, Watanabe C, Hayashi T, Patchimasiri T, et al. 2008. Molecular epidemiological analysis of highly pathogenic avian influenza H5N1 subtype isolated from poultry and wild bird in Thailand. *Virus Res*, 138(1-2):70-80.
- 4) Suptawiwat O, Kongchanagul A, Chan-It W, Thitithanyanont A, Wiriyarat W, Chaichuen K, et al. 2008. A simple screening assay for receptor switching of avian influenza viruses. *J Clin Virol*, 42(2):186-9.
- 5) Chantratita W, Sukasem C, Kaewpongsri S, Srichunrusami C, Pairoj W, Thitithanyanont A, et al. 2008. Qualitative detection of avian influenza A (H5N1) viruses: a comparative evaluation of four real-time nucleic acid amplification methods. *Mol Cell Probes*, 22(5-6):287-93.
- 6) Auewarakul P, Sangsiriwut K, Chaichoune K, Thitithanyanont A, Wiriyarat W, Songserm T, et al. 2007. Surveillance for reassortant virus by multiplex reverse transcription-PCR specific for eight genomic segments of avian influenza A H5N1 viruses. *J Clin Microbiol*, 45(5):1637-9.
- 7) Louisirirochanakul S, Lerdsamran H, Wiriyarat W, Sangsiriwut K, Chaichoune K, Pooruk P, et al. 2007. Erythrocyte binding preference of avian influenza H5N1 viruses. *J Clin Microbiol*, 45(7):2284-6.
- 8) The Monitoring and Surveillance Center for Zoonotic Diseases in Wildlife and Exotic Animals. 2007. Manual of field sample collection for avian influenza viral detection in wild birds.

#### **Oral presentations**

- Ratanakorn P, Chaichoune K, Wiriyarat W, *et al.* 2008. Surveillance of Avian influenza virus in migratory and domestic bird populations by using satellite telemetry technique: three dimensional disease surveys: International Symposium on Avian Influenza: Integration from Knowledge to Control, Bangkok, Thailand.
- Wiriyarat W, Chaichoune K, Eiamampai K, *et al.*; 2008. Investigation of the role of wild birds in HPAI H5N1 virus spreading in Thailand, 2008. Asian-African Research forum on Emerging and Reemerging Infection, Japan-CRNID, Sapporo, Japan.

## **Symposia and workshops**

Sept. 2007, in Bangkok, Thailand: Avian Influenza and wildlife: Regional Surveillance and Research Priorities for Asia. By FAO, USDA.

Oct. 2007, in Beijing, China: Avian Influenza and wildlife. By FAO, Wetlands International.

Jan. 2008, in Bangkok, Thailand: International Symposium on Avian Influenza: Integration from Knowledge to Control.

December 2008, in Sapporo, Japan: Asian-African Research forum on Emerging and Reemerging Infection. By Japan-CRNID.

March 2009, in Bogor, Indonesia: Mid-term project workshop.

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## CHINA

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### **Peer reviewed publications**

- (1) Zhang JR, Zhao DL, Yin ZH and Lei FM. 2007. The threat of highly pathogenic avian influenza H5N1 and its ecological basis. **Journal of Zoology** 42(6):192-196.
- (2) Wu YY and He HX. 2008. Wild Birds Influenza and Conservation. **Chinese Journal of Nature** (30)2: 78-81.
- (3) Zhang JR and Lei FM. 2008. Analysis of HA gene's variation and evolution of some avian influenza viruses in China. **Journal of Zoology** 43:10-16.
- (5) Wang CM and HE HX. 2009. Parasite species associated with wild plateau pika (*Ochotona curzoniae*) in south-eastern Qinghai Province, China. **Journal of Wildlife Disease** (accepted).
- (6) Hou YS, He YB, Xing Z, et al. 2008. Distribution and diversity of waterfowl population in Qinghai Lake National Nature Reserve. **Acta Zootaxonomica Sinica** 34(1):184-187.
- (7) Zhang et al. 2009. Study on the characteristics of the human-infected avian influenza H5n1 HA subtype in China between 2006 and 2007. **Ningxia Med. J.** 31: 193-195.
- (8) Liang QL, Zhou K and He HX. 2009. Retrocyclin 2: a new therapy against avian influenza H5N1 virus in vivo and vitro. **Biotechnol Lett.** DOI 10.1007/s10529-009-0167-2.
- (9) Zhang JR and Lei FM. 2009. Analysis of Human Infectious Avian Influenza Virus H5N1 Hemagglutinin Genetic Characteristics in Asia and Africa. **Integrative Zoology** (under 2nd review).
- (10) Cui P. et al. 2009a. Movements of the Bar-headed Geese *Anser indicus* in relation to H5N1 spread during breeding and post breeding periods in Qinghai Lake, China. **Journal of Ornithology** (under 2nd review).
- (11) Cui P. et al. 2009b. Bird Migration and Risk for H5N1 Introduction into Qinghai Lake, China **Vector-Borne and Zoonotic Diseases** (submitted)
- (12) Qu YH, Zhang RY, Cui P, et al. 2009. Evolutionary genomics of the swine-origin 2009 A (H1N1) influenza viruses. **PLOS ONE** (under review).
- (13) Cui P, et al. 2009c. New insights of the role of wild birds in global highly pathogenic avian influenza H5N1 viruses' prevalence. (under preparation).

### **Abstracts in conferences**

- (1) Lei FM, Ding CQ, He HX, Li TX, Zhang JR, Yin ZH. 2007. The role of wild birds-wetlands in current global HPAI H5N1 prevalence. *Studies on Chinese Ornithology* 289.
- (2) Lei FM, Li TX, Zhang JR, Yin ZH, He HX, Zhao HF, Zhao DL. 2008. To protect wild birds and their wetland environments under the current HPAI H5N1 prevalence. Proceedings of Bangkok International Conference on Avian Influenza 2008: Integration from Knowledge to Control 29 (Plenary speaker).

### **Conference and workshops**

#### **(1) Sept. 3-5, 2007, in Bangkok, Thailand**

Avian Influenza and wildlife: Regional Surveillance and Research Priorities for Asia. By FAO, USDA.

#### **(2) Oct. 11-13, 2007, in Beijing, China**

#### **(3) Oct. 22, 2007, in Hainan University, China**

The 9th China Ornithological Conference.

**Plenary Speech:** The role of wild birds-wetlands in current global HPAI H5N1 prevalence.

#### **(4) Jan. 23-25, 2008, in Bangkok, Thailand**

International Symposium on Avian Influenza: Integration from Knowledge to Control.

**Plenary Speech:** To protect wild birds and their wetland environments under the current HPAI H5N1 prevalence. **Chairman of Oral presentation**

#### **(5) August 28-Sept. 6, 2008, in Campos do Jordão, Brazil**

Preparatory meeting of the scientific program of the 25th IOC.

**Plenary Speech:** To protect wild birds and their wetland environments under the current HPAI H5N1 prevalence.

Lei was invited as the symposium convener and a keynote speaker in "Avian Diseases: emerging infectious diseases in wild birds".

#### **(6) Nov. 2008, in Cambodia, "4th APAIR Regional Meeting and 3rd Face-to-Face Partnership Steering Committee Meeting".**

Lei and other colleagues gave a report of program of the 1st year progress.

#### **(7) March 9-11, Indonesia, IDRC/APAIR Wild Bird Project meeting.**

Lei gave a project annual report "Forming of Regional Network for Surveillance and Monitoring of Avian Influenza in Migratory Birds".

#### **(8) July 7-9, The 3rd International Symposium of Integrative Zoology.**

Lei gave a talk "Movement pattern of bar-headed goose (*Anser indicus*)-risk analysis of HPAI H5N1 around Qinghai Lake".

#### **(9) Sept. 11-12 in Oxford, "Anglo-Sino Workshop on Influenza in Livestock Species".**

Lei gave a report "Migration of Bar-headed Goose (*Anser indicus*) and its Role as Potential Vector for H5N1 transmission at Qinghai-Tibetan Plateau".

#### **(10) Nov. 28-29, Beijing, IAC Workshop on Backyard Surveillance of Emerging Diseases.**

Lei on behalf of IDRC China team leader, gave a talk "The role of wild bird migration in H5N1 circulation: Backyard versus "sky" surveillance".

All these meetings are very important for public awareness of the relationship between migratory birds and H5N1 global circulations, and for getting to know the international support from IDRC.

## **Impact on the local government**

- (1) The current research concerning AIV pushed up the foundation of “The Joint Research Center of Chinese Academy of Sciences and Qinghai Lake National Natural Reserve”.
- (2) The current research concerning migratory bird AIV pushed up the research priority on the “Role of waterfowls and their ecology in HPAI H5N1 circulation” in CAS Innovation Program.
- (3) The current research was a strong basis for facilitate in prioritizing an e-Science program in CAS Innovation Program.

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## INDONESIA

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### **Publications and papers**

#### *Regional:*

Proceedings of The 3<sup>rd</sup> International Meeting on Asian Zoo / Wildlife Medicine and Conservation (AZWMC 2008). Bogor, Indonesia 19-21 August 2008. Pp. 61-63.

#### *National:*

- Guide book for conducting AI research (translation)
- National strategy and Action Plan to control AI in wild birds
- Posters

### **Workshops**

#### *Regional:*

*Workshop AI (Avian Influenza) and Wildlife: Regional Surveillance & Research Priorities for Asia*, 31 August – 6 September 2007, Bangkok, Thailand

*Workshop AI (Avian Influenza) and Wildlife: Regional Surveillance & Research Priorities for Asia*, 3 – 7 July 2008, Bangkok, Thailand

*4<sup>th</sup>APAIR Regional Meeting & 3<sup>rd</sup> Steering Committee Meeting*, 5-6 November 2008, Siem Reap, Cambodia

*Mid Project Workshop of APAIR: Forming Regional Network for Surveillance and Monitoring of Avian Influenza Viruses in Migratory Birds*, 10-11 March 2009, Bogor, Indonesia

#### *National:*

*Workshop Avian Influenza on Wild birds*, 13-17 April 2008, Bogor-Indonesia

*Workshop Partnership of East Asia and Australasian Flyway*, 13-14 May 2008, Bogor-Indonesia

*Workshop “Policy to control Avian Influenza virus: Implementation, Impact and Lesson-learned”*, 22 May 2008, Bogor-Indonesia

*Workshop "Challenge on Avian Influenza research in Indonesia", 4 September 2008, Jakarta-Indonesia*

## **Training**

Capacity building in sample collections

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### CAMBODIA

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- Dissemination information about the pilot project, including a presentation at the National Workshop on Avian Influenza Research Activities in Cambodia that was conducted in October 2008; the distribution of project posters to local forestry administration offices and local communities; and the presentation of displays at the Annual Royal Plowing Ceremony in May 2009 and the National Royal Arbor Day that will be organized in July 2009.
- Pilot Project Technical Report and draft of Prepared Plan has been submitted to IDRC. However the Pilot Project Technical Report is yet published for distribution yet, and as well as the draft of Prepared Plan is being review by Department of Wildlife and Biodiversity of the Forestry Administration and The national Veterinary Research Institute of the Department of Animal Health and Production, Cambodia.

## ANNEX 4. SOCIO-ECONOMIC IMPACT PROJECT OUTPUTS

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### CHINA

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#### **Publications and papers**

##### **National journals:**

1. Yu Lerong, Li Xiaoyun, and Wang Libin, 2009, Behavior changes of poultry producers after AI outbreak, "Agricultural Economic Issues," Issue 7, 2009, p 13-20.
2. Yu Lerong, Li Xiaoyun, Wang Libin, and Zheng Hong E, 2009, Economic Impact Assessment on Poultry Producers after AI Outbreak, "China Rural Economy," Issue 7, 2009, p 12-19

##### **National books:**

1. Yu Lerong, Zheng Hong E, Wang Libin, and Li Xiaoyun, "Socio-economic Impact Study of AI Outbreak in China," contribution to the book on "Status of Rural China 2008", edited by Li Xiaoyun, Zuo Ting, and Ye Jingzhong, published by Social Science Press of China, 2009, p 374-397
2. Li Xiaoyun, Wang Libin, Yu Lerong, and Zheng Hong E, "Risk and Development: Socio-economic Impact of AI on Backyard and Small Scale Producers," published by Social Science Press of China, upcoming in January 2010,

##### **Regional level:**

1. Regional report on Socio-economic Impacts of HPAI Outbreaks and Control Measures on Small-scale and Backyard Poultry Producers in Asia, drafted by Wang Libin, with contribution from each research team
2. Regional book on Socio-economic Impacts of HPAI Outbreaks and Control Measures on Small-scale and Backyard Poultry Producers in Asia, the manuscripts from 3 of 4 research teams are ready, published in 2010

##### **Master's thesis:**

Wang Hechun, Economic Impacts of AI Outbreaks and Control Measures, 2009. College of Humanities and Development, China Agricultural University, Advisor: Professor Wang Libin

#### **Communications (e.g. press releases, TV/radio interviews)**

A national conference to disseminate the research findings will be held in March 2010, the media will be invited during that time.

#### **Providing advice to governments or other stakeholders**

The Policy Brief on AI prevention and control is prepared and is intended for Ministry of Agriculture in China.

#### **Facilitating dialog among stakeholders at different levels**

The field survey carried out in the research was also employed as a process to consult opinions of different stakeholders and facilitate the dialogue.

National conference to disseminate the research findings scheduled in March of 2010 will bring the stakeholders together: the media, the community people, Ministry of Agriculture, provincial, township government staff will be invited.

### **Workshops and conferences**

1. Wang Libin, Presentation on Regional Preliminary Findings on Socio-economic Impacts of HPAI Outbreaks and Control Measures on Small-scale and Backyard Poultry Producers in Asia.
2. Nov.3-5, 2008, Siem Reap, in Cambodia, "4th APAIR Regional Meeting and 3rd Face-to-Face Partnership Steering Committee Meeting."
3. Wang Libin and China Team, presented the research findings on the Final Cross Country Workshop, April 1-5, Bali, Indonesia.
4. Yu Lerong, Presentation on Economic Impact Study of AI on Poultry Producers in China, at the International Conference on Public Economy and Management, hosted by Journal on Economic Study and Xiamen University, November 28-29, 2009, Xiamen City, China.
5. Zheng Hong E, Presentation on Social Impact of AI on Poultry Producers in China, at the Forum of Social Scientists hosted by Peking University, November 20, 2009, Beijing, China.

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## INDONESIA

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### **Publications and papers (national, regional, international)**

1. Basuno E, 2008. *Review Dampak Wabah dan Kebijakan Pengendalian Avian influenza di Indonesia – Review on Impacts and Policies on AI Control Measures in Indonesia. Jurnal Analisis Kebijakan Pertanian - Agricultural Policy Analysis Journal*. Vol. 6 Nomor 4, Desember 2008.
2. Basuno E, Y. Yusdja dan N. Ilham, 2008. Socio-economic Assessment of AI and AI Control Measures on Backyard and Small Producers. Paper Presented in the International Eco-health Forum, Merida, Mexico. December 1 – 5, 2008.
3. Basuno E, Y. Yusdja dan N. Ilham, 2009. Socio-economic Impacts of Avian Influenza Outbreaks on Small-scale Producers in Indonesia. Paper Presented in the 10th Biennial Conference of the Society for Tropical Veterinary, Lubeck, Germany. June 28 - July 3, 2009.
4. Yusdja Y, N. Ilham dan E. Basuno, 2008. *Kebijakan Sosial Ekonomi Industri Perunggasan dalam Pengendalian Wabah Avian Influenza dengan Fokus pada Usaha Peternakan Ayam Rakyat – Socio Economic Policies on Poultry Industry in Controlling AI Outbreak with Focus on Small Scale Enterprises - Aciar Seminar, ICASEPS, Bogor, May.*
5. Basuno, E. 2008. Socio-economic Impacts of HPAI Outbreaks and Control Measures on Small-scale and Backyard Poultry Producers in Asia. Seminar on Research Challenge on Avian Influenza in Indonesia. LIPI - Indonesia Science Institute, Jakarta, 4 Sept.
6. Basuno, E. 2009. *Dampak Wabah Flu Burung terhadap Perubahan Modal Sosial Masyarakat Peternak dan Pedesaan di Indonesia*. Impact of AI Outbreak towards Social Capital Changes of Poultry Producers and Rural Community in Indonesia. National Seminar, IDRC Bogor, February
7. Ilham Nyak, 2009. *Dampak Wabah Flu Burung Upaya Penanggulangannya*. Impact of AI Outbreak on Control Measures. National Seminar, IDRC Bogor, February

8. Yusdja, Y., 2009. *Alternatif Strategi dan Kebijakan Penanggulangan Wabah AI pada Peternak Skala Kecil di Indonesia*. Policy and Strategy Alternatives of AI Outbreak Control on Small-scale Poultry Farms in Indonesia. National Seminar, IDRC Bogor, February
9. AI Seminar Proceeding will be published in 2010 by ICASEPS.

**Communications (e.g., press releases, TV/radio interviews)**

Participated in the Agriculture Extension Radio Broadcast in Bogor, as Resource Person. This broadcast manages by the Department of Agriculture. Topic: Impact of AI outbreak on Small Scale Poultry Enterprise.

Press release will be carried out in 2010 by inviting the media.

**Providing advice to governments or other stakeholders**

Prepare a policy brief on research results and recommendation to stay away from impacts of AI outbreak, particularly for small scale producers. This policy brief is intended for the Minister of Agriculture.

**Facilitating dialog among stakeholders at different levels**

National dialog with the title of “Impacts of AI Outbreak towards Small Scale Poultry Producers in Indonesia” was conducted in 2009. Dialog was attended by various stakeholders closely related to small scale poultry industry.

## ANNEX 5. SUGGESTED KEY QUESTIONS FOR FUTURE USE

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In hindsight, perhaps 10 key questions were too many to include in a single exercise. To streamline the process and to sharpen the reflections and responses, it is suggested that a fewer number of more focused questions be developed for future self-reflection purposes. The following set of reformulated questions – focusing on APEIR achievements, performance, lessons learned, future directions, and feedback – may be considered:

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### SUGGESTED KEY QUESTIONS

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1. ***APEIR achievements***. What do you consider to be the main achievements from APEIR research projects and related work, as well as your participation in the APEIR network?

Please try to differentiate the main achievements according to:

- a) Research findings

- Key findings, including cause-effect relationships

- b) Project outputs

- Including publications, papers, communications, workshops, advice to stakeholders, facilitating dialog, public awareness

- c) Broader non-scientific outcomes

- Changes in the behavior, relationships and/or activities of partners influenced by the research projects or through their engagement with APEIR (including unintended or unexpected outcomes)
- Consider using Outcome Mapping during project design to articulate the desired outcomes, which may be monitored during and after implementation

- d) Emerging impacts/significant changes

- Significant and lasting changes in the well-being of intended beneficiaries

2. **Network performance and dynamics.** What do you consider to be the main strengths and weaknesses (internal to APEIR), as well as opportunities and threats (external to APEIR) from your experience so far?
  - Do SWOT analysis with relevant groups (research teams, country networks, Steering Committee)
  - Consider also using Network Functions Approach to analyze functions of the network, as well as its responses to internal and external dynamics
  
3. **Lessons and implications.** What are key lessons learned from your engagement in APEIR research projects, or the network as a whole? What are the implications of these lessons for APEIR functions or structure in the future?
  - Including both positive and negative lessons
  
4. **Future niche, roles and functions.** What should be the APEIR niche, and specific roles and functions, in the future?
  - Including what the network should focus on, evolve towards, or change in the future
  
5. **Feedback on self-reflection.** Can you please provide some feedback on the usefulness of APEIR self-reflection exercises, as well as how to improve the process or key questions in the future?