



## Research Meeting

### Pro-poor HPAI Risk Reduction: Lessons from Southeast Asia and Africa

Held in conjunction with the 34<sup>th</sup> Session of the Animal Production and Health Commissions for Asia and the Pacific (APHCA)

Phuket, Thailand. 25-27 October 2010

## Research Partners





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## Executive summary

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This meeting was the final gathering of the international and national research partners of the Pro-poor HPAI Risk Reduction project (<http://www.hpai-research.net/index.html>). It was also the technical component of the annual meeting of the Animal Production and Health Commission for Asia (APHCA), thus ensuring the participation of 13 APHCA delegates, each of whom represents the Chief Veterinary Officer in their country. As such, the meeting provided an opportunity to review and synthesize the project findings and experiences, to share these with an important group of interested stakeholders, and to obtain feedback from national authorities charged with disease control.

The objectives were: a) to share and synthesize project findings and experience on HPAI control; b) to learn from participants about their own experience and c) to draw generalizable lessons from HPAI that could apply to other emerging infectious diseases of livestock.

The project worked in nine countries (Thailand, Cambodia, Viet Nam, Lao PDR, Indonesia, Kenya, Ethiopia, Nigeria, Ghana), representing a range of risk situations. It had five workstreams: disease risk; livelihoods impacts; institutional analysis; risk management and communication and advocacy.

A comparison of HPAI control measures and the state of knowledge in 2005 and today highlighted that the project was working in a very dynamic environment and had to constantly adapt to changes and advances in knowledge to stay relevant. In 2005, veterinary services were largely operating in a knowledge vacuum about HPAI. The epidemiology of the disease in poultry was poorly understood and very little was known about the biological and economic impact of standard disease control measures. Research funding to fill knowledge gaps was made available only after the disease had spread as far as Africa and Europe, and national animal health systems were obliged to undergo a long period of “trial and error”. They also had limited experience and capacity to devise effective communication strategies or multi-sectoral control plans for an emergency of the scale HPAI had assumed. Now, a considerably greater stock of information and experience is available from which to synthesize lessons and examples of good practice.

### Main findings and their implications

Trade in live poultry (legal and illegal) represents a much higher risk than wild birds in spreading disease, although wild bird migration played a part in between-region spread. Rice-duck-(fish) systems were (and remain) an important reservoir of the HPAI H5N1 virus. Background data for carrying out risk assessments in the poultry sub-sector (production and trade statistics, value chain maps, network maps, institutional factors) was lacking in 2005 and this impeded disease control planning. Basic data on the poultry sector is now greatly improved, but similar data are lacking for other livestock sub-sectors. In order to develop good disease control strategies, it is essential to have a sound understanding of the livestock sub-sector(s) involved. It is also important to put livestock diseases and their control into a broader context that considers social, technical, economic, environmental and political (STEEP) aspects. **Implication: data on the livestock sector, value chains and the role of livestock in national development is needed in advance of a crisis.**

As new information has become available, the understanding of the risk of disease introduction and spread posed by different actors in the poultry ‘business’ has changed. Early in the HPAI pandemic backyard producers were seen as the main ‘culprits’. Blame later shifted to large producers, and then to small scale commercial farmers and traders. There may be a tendency to single out one group as “the problem” while the reality is that due to the manifold interactions between the various types of actors the poultry sector, all contribute to the overall disease risk. Likewise, HPAI causes a complex mixture of direct and indirect impacts, acting on producers, consumers and traders, all of whom can potentially be partners in finding solutions to disease problems. **Implication: disease risk assessment and mitigation requires a holistic approach that takes into account all important players and provides situation-specific approaches to prevention and control.**

Demand shocks, causing a large fall in prices for a short period, are more detrimental to livelihoods of poultry producers than supply shocks resulting from disease outbreaks and / or culling), and can occur even without an outbreak. Demand shocks tend to be greatest in countries suffering an outbreak for the first time or where consumers are in fear of one. In countries with recurring disease, supply shocks are sporadic and demand shocks restrained suggesting that consumers adjust their preferences over time while producers adjust their livelihood portfolio. **Implication: consumer concerns over food safety are a major factor in inducing market shocks and therefore effective risk communication is critical for mitigating disease impacts.**

Control measures can have severe impacts on all actors in the supply chain, irrespective of the infection status of the birds they own. Large scale poultry producers suffer a greater total loss of income than medium and small scale producers, with smaller flocks and more diversified livelihoods portfolios. Smallholders also have strategies to cope with one-time losses of poultry. However, in most countries there are 'livelihood hotspots' where the poor rely heavily on poultry and where poultry fulfils a vital role in keeping the household economy functioning. **Implications: outbreak contingency plans should be developed in parallel with livelihoods contingency plans for the most vulnerable groups.**

In the absence of close substitutes, there are potential detrimental effects on childhood nutrition (with results such as stunting and anaemia) from prolonged withdrawal of poultry products from the diet. Fortunately this does not seem to have occurred on any wide scale within project countries – for the most part people have found protein and micro-nutrient substitutes. **Implications: if there is a sustained fall in poultry consumption related to a disease, governments may need to target nutritional support for young children in vulnerable households.**

Poultry production and processing standards promoted by the industrial sector are reducing the prospects for smallholder poultry development. Changing market environments in response to HPAI pose a more serious threat to smallholder poultry producer livelihoods than HPAI itself. The project trialled a scheme to promote branded safe local chicken and an SMS-based poultry trading system and found each had potential to encourage bio-security improvements in smallholder poultry production provided that start-up costs could be financed. **Implication: there is potential in providing a market environment for small-scale poultry producers that encourages them to adopt improved biosecurity or other disease prevention measures.**

A combination of economic and institutional factors plays an important part in disease risk and risk management. The project reviewed standard approaches to outbreak control (radial culling and vaccination) as well as longer term preventive measures (biosecurity). The analysis highlighted the danger of imposing control measures without understanding the practices and perceptions of those who are expected to comply with them. Vaccination and ring culling are costly and not particularly effective when applied on a wide scale in backyard poultry systems. Targeted vaccination and culling within high-risk groups can achieve comparable risk reduction at a fraction of the cost. Backyard poultry producers and small scale traders also have limited capacity or incentives to apply biosecurity measures. **Implication: make a realistic assessment of stakeholder capacity and perceptions when planning interventions.**

Early detection is essential and an effective surveillance system is critical. This is one of the things that received insufficient attention in HPAI control. Culling with inadequate compensation has been a disincentive for small scale producers to report disease. However there are several examples of both active and passive (farmer and community driven) surveillance systems that were developed in response to HPAI and show promise but have not yet been fully evaluated. **Implication: Emerging infectious disease (EID) control will require a more serious effort to evaluate and develop surveillance systems – not only targeted sampling driven by laboratories but voluntary reporting by farmers and the general public need to be part of this system.**

HPAI has highlighted gaps in veterinary services capacity, and the need to strengthen regional as well as national capacity. Weaknesses in regional capacity, particularly where countries share borders, undermine national efforts. **Implication: regional as well as national institutions need to have greater capacity to understand and respond to shared disease risks.**

Transboundary zoonoses carry large externalities and justify major international investments in their control. Economies with the highest potential economic damage from HPAI, including the OECD, China, and India, are under-investing in risk reduction at source. Because of geographic disparities in both economic risk and disease origination risk, more effective co-ordination of investment is needed. **Implication: continued and well-co-ordinated international investment is needed in EID prevention and control.**

Communication in support of EID control is critical and must be done at many levels. Communication within the international community is important so that coherent and consistent assistance is provided to countries struggling with contingency planning and emergency action. Policymakers require broad strategic information and advice on presenting sensitive material to the public; outbreak managers require channels of communication with their ministers, field teams, farmers and the public; industry, farmers and the general public need to know what is expected of them, what actions the government is taking and, to the extent possible, what risks they face; the media requires accurate up to date information and has a considerable responsibility not to accelerate panic. An appropriate balance of communicating about risk and advocating for action is needed with a sensitivity to cultural factors that affect the way that issues are perceived. This is easier said than done and throughout the HPAI crisis there have been weaknesses in communication strategy and practice at many levels. **Implication: a comprehensive approach to communication about EIDs is needed that starts well before an emergency takes hold and is orchestrated to avoid unnecessary panic. It needs to ensure that all of those involved are engaged, educated and clear about their roles and the chronology of communication.**

A strong message from this project and other experience is that there are no magic recipes and that HPAI H5N1 will not be eradicated in the near future. There is a long delay between improved information and a change in behaviour. When comparing the lessons learned with the gaps that still exist it is evident that even where there is an understanding that certain approaches are desirable, they have not always been put into place. “Traditional” disease control approaches need to be adapted to prevailing circumstances and new methods need to be developed, tried and incorporated into the ‘mix’ of control measures. **Implication: in EID control of the future, innovation will be needed to overcome existing gaps and difficulties, and conscious reflection and sustained effort will be necessary to ensure that technological and institutional advances are incorporated.**

The “One Health” Approach is gaining traction. If successful it may help to overcome some of the institutional barriers that were experienced during the HPAI crisis. There was a strong recommendation from this meeting to operationalize the One Health approach at country level and specific recommendations were made on how this should be done, with structures and activities in both peacetime and crisis to promote information sharing and joint efforts across sectors. **Implication: there is an urgent need to move forward with field-level operationalization of One Health principles. The international community has been successful in planting the idea but needs to move quickly into “learning together” with countries and regions and providing investment support.**

# Timetable

<b>DAY 1</b>		<b>TAKING STOCK</b>	
		<b>Moderator: Martin Evans (Project manager)</b>	
1:30 – 2:00PM	VIP Formal Opening by Hiroyuki Konuma (FAO ADG RAP - delivered by Vinod Ahuja), Mirzet Sabirovic (DFID) and Preecha Somboonprasert (Department of Livestock Development)		
2:00 – 2:15 PM	Photo Session		
2:15 – 2.30 PM	An introduction to the project and objectives of the meeting. Martin Evans.		
2:30 – 3:30 PM	<u>HPAI STOCKTAKING</u> : what were we doing in 2005 and what are we doing now? A summary of main project findings. Clare Narrod (IFPRI) and Joachim Otte (FAO)		
3:30 – 3:45 PM	Break		
3:45 – 5.00 PM	Panel presentation and plenary discussion : “what did we know and what do we wish we had known? “Panellists: Elly Sawitri (Indonesia); Catherine Wanjohi (Kenya), Anh Tuan Nguyen Do (Viet Nam), Joseph Nyager (Nigeria). <u>COMMUNICATION STOCKTAKING</u> . Anni McLeod (FAO) and Klaus von Grebmer (IFPRI) Video: netmapping. Eva Schiffer (IFPRI)		
5.00 – 5.15 PM	Participants’ own summary and reflection.		
<b>DAY 2</b>		<b>FINDINGS</b>	
		<b>Moderator for morning: Vinod Ahuja (FAO RAP)</b>	
9:00 – 10:45 AM	<u>DISEASE RISK</u> The main research findings, implications and policy conclusions. Presenter: Dirk Pfeiffer (Royal Veterinary College)		
10:45 – 11:00 AM	Break		
11: 00 – 12.15 PM	<u>LIVELIHOOD IMPACTS</u> Presentations on the main research findings, implications and policy conclusions. Presenters: Marites Tiongco (IFPRI) and David Roland-Holst (UC Berkeley)		
12:15 – 1:15 PM	Lunch		
	Moderator for afternoon : Wantanee Kalpravidh (FAO RAP)		
1:45 – 3:00PM	<u>INSTITUTIONS AND MITIGATION EFFORTS</u> Presentations on the main research findings, implications and policy conclusions. Presenters: Bernard Bett (ILRI) and David Roland-Holst (UC Berkeley)		
3:00 – 3:15 PM	Break		
3:15 – 4.30 PM	<u>EVALUATING RISK MANAGEMENT OPTIONS</u> Presentations on the main research findings, implications and policy conclusions. Presenters: Clare Narrod (IFPRI) and Joachim Otte (FAO)-		
4:30 – 5:00 PM	Participants’ reflections on the day		
<b>DAY 3</b>		<b>MOVING FORWARD</b>	
		<b>Moderator : Anni McLeod (FAO)</b>	
9:00 – 9:30 AM	<u>RISK COMMUNICATION AND ADVOCACY STRATEGIES:</u> “The view from the farm”. Chitoor Gopinath (FAO RAP)		
9.45 11: 00 AM	<u>WHAT CAN WE LEARN FROM HPAI FOR OTHER EMERGING INFECTIOUS DISEASES</u> Group work on a) EID control and b) communication		
11:30 – 12:00 PM	Break Display of group posters from group work session		
11:30 – 12:30	Highlights from the group posters Workshop round up		

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## Day 1: Taking stock

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### Introduction to the project and objectives of the meeting.

This meeting was the final gathering of the international and national research partners of the project from the Asia region and from Africa. It was arranged to form the technical component of the annual meeting of the Animal Production and Health Commission for Asia (APHCA), thus ensuring the participation of 13 APHCA delegates, each of whom represents the Chief Veterinary Officer in their country. As such, the meeting provided an opportunity to review and synthesize the project findings and experiences, to share these with an important group of interested stakeholders, and to obtain feedback from national authorities charged with disease control.

The objectives were:

- to share and synthesize project findings and experience on HPAI control;
- to learn from participants about their own experience;
- to draw generalizable lessons from HPAI that could apply to other emerging infectious diseases of livestock.

The programme manager, Martin Evans, provided the following overview of the project.



Evans  
Introduction.pdf

He also briefly described the five project work streams.

1. Risk assessment.
2. Livelihoods impacts.
3. Institutional response.
4. Synthesis of work into risk management recommendations.
5. Communication and advocacy. Unlike the other four work streams this one did not have specific research activities associated with it. This workstream has the objective of making the project's findings visible and accessible. Nevertheless, there has been some learning and reflection on risk communication and advocacy.

The meeting agenda was designed to cover the full range of findings and experience from the project. Day 1 provided a reminder of the disease situation and the communication environment in which the project operated, and gave a brief overview of research results. Day 2 provided an opportunity to review in more detail the findings of the first four work streams and compare them with the experience of the meeting participants. Day 3 examined what has been learned by the project team and others about animal health communication and then moved on to consider the lessons from HPAI prevention and control that can be carried forward to other emerging diseases.

## HPAI stocktaking: approaches to HPAI control in 2005 and now

The participants were asked to reflect on the actions taking place in their countries during the 2005 outbreak and the actions taking place now. As might be expected, there has been a shift from emergency action to a longer term perspective of prevention and control.

In 2005:

- Some countries in Asia were experiencing outbreaks and applying a wide range of outbreak control measures (ring culling with or without compensation, movement control, some active surveillance).
- Vaccination was being considered as a possible “silver bullet”.
- Many countries around the world had not been infected but were aware of the risk. Some were preparing contingency plans while others were not.
- DFID was becoming seriously concerned about impacts on poverty and livelihoods and this eventually led to the financing of the current project.

Now, a much wider range of approaches and tools is being used.

- The usual range of measures is still used to control outbreaks, but culling has become more targeted.
- Various models of surveillance have been applied (although not all have been fully tested or evaluated for their sensitivity and cost-effectiveness) and it was noted that surveillance requires co-operation between veterinary services farmers and the public.
- Some countries are placing emphasis on biosecurity and this is having effects on the structure of the poultry sector (small-scale market-oriented producers are leaving the sector). It was noted that biosecurity has to be maintained along the whole value chain and not only at the farm. However it is very difficult to implement on small farms.
- Eradication is being discussed although it is recognised that this is a very long term prospect.
- More money has been invested in research in to drivers of disease than in 2005. Examples include cross sectional studies and value chain mapping for the poultry sector.
- Veterinary services and their diagnostic capacities have been strengthened, particularly in Asia.
- ASEAN consolidated the various projects in member countries and has developed a road map to 2020 that has been endorsed by senior officers and in some cases ministers. They have also set up a trust fund to finance the road map, though it is not functional yet.

This brief exercise highlighted that the project was working in a very dynamic environment and had to constantly adapt to changes and advances in knowledge to stay relevant.

## A summary of project findings



Narrod results  
summary.pdf



Otte results  
summary.pdf

## Communication stocktaking

### ***Panellist interventions: the state of knowledge in 2005***

The four panellists each presented a personal impression of “what we knew” and “what we wish we had known” in 2005.

Ely Sawitri: (previously head of the HPAI Campaign Management Unit for Indonesia but on this occasion giving her personal opinion)

What we knew.

- We knew very little.
- Clear lines of command were lacking.
- Communication was lacking with industry. There was virus circulation through industry but little information on how much.
- We knew that H5N1 can move from animals to humans.

What we wish we had known:

- More about how the virus was circulating within industry.
- That vaccination was not enough to bring the disease under control.
- That within backyard systems indirect contact was important in spreading the disease.
- The focus in the early days was on wild birds and this took pressure off industry. Now there is better communication between industry and government.

Cathryn Wanjohi (a member of Kenya’s task force on HPAI, speaking here in her personal capacity)

What we knew.

- Kenya was on the migratory pathway of wild birds, therefore it had potential for being infected.
- Poultry was not seen by the government as an important part of the livestock sector – HPAI changed this.
- We knew very little about what might happen.

What we wish we had known:

- The importance of biosecurity in disease control.
- The importance of involving all stakeholders along the value chain in prevention and control measures.
- That there was a need to look beyond the technical issues in planning disease prevention and control strategies.
- That wild birds were not the only threat.
- A better understanding of the production systems, the appropriate control measures and the economics of the different measures
- The possible spin-offs – for example, working on HPAI has helped in dealing with Newcastle disease.
- We wish we had had a strategy that was based on risk analysis.

Anh Tuan Nguyen Do (deputy director of CAP-IPSARD, Viet Nam, speaking in his personal capacity)

What we knew.

- That HPAI was a serious problem
- That there was transmission from poultry to humans.
- That small scale farmers, with diverse enterprises, lost less income than large farmers.

What we wish we had known:

- How to establish a good surveillance system.
- How best to use biosecurity and movement control in Vietnam and within the farming systems.
- How to restructure the poultry sector. Vietnam is piloting “production zones” where infrastructure is provided for farmers to keep multiple species on a medium scale in locations away from towns. These are proving to be problematic and may not be the best solution.

Joseph Nyager (Chief Veterinary Officer of Nigeria, speaking from his personal experience):

What we knew.

- There was little knowledge – even the experts had little knowledge.
- There was no understanding of the importance of communication and biosecurity.
- That the risk of introduction and spread was high.
- On vaccination, we had a limited understanding of the epidemiology and no exit strategy if we were to start vaccinating.

What we wish we had known:

- More about the epidemiology of the disease
- Which stakeholders to target with the communication strategy. At the beginning we only worked with poultry associations but there were many others who ought to have been included. Communication was not only pamphlets but also feedback from the stakeholders.
- How much markets and marketers varied across the country.
- That an emergency plan needs to be multisectoral and multidisciplinary
- The need to stockpile (e.g. vaccine).

These statements reveal that veterinary services were largely operating in a knowledge vacuum at the beginning of the HPAI pandemic. The epidemiology of the disease in poultry was poorly understood and very little was known about the biological and economic impact of standard disease control measures. Research funding to fill knowledge gaps was made available only after the disease had spread as far as Africa and Europe, and national animal health systems were obliged to undergo a long period of “trial and error”. They also had limited experience and capacity to devise effective communication strategies or multi-sectoral control plans for an emergency of this scale. Now, a considerably greater stock of information and experience is available from which to synthesize lessons and examples of good practice.

## **Presentation: “taking stock of the communication environment”**



Mcleod

Communication stockt

### **Video presentation: net-mapping to identify communication bottlenecks**

An exercise was carried out in 4 of the project countries to map the pathways through which information about possible HPAI outbreaks is passed from the field to the veterinary service and decision makers, and through which decisions are passed about interventions to be made. The exercise indicates where there may be communication bottlenecks that could hamper disease prevention and control. This type of stakeholder analysis can be done fairly quickly with a group of local experts to assist in developing risk management and risk communication strategies. It is most cost effective when applied at district level or above, by people who have a broad knowledge of the livestock sector, the movement patterns of people and animals, and the relationships between stakeholders. The related project research brief can be found at this link:

[http://www.hpai-research.net/docs/Research\\_briefs/IFPRI-ILRI/IFPRI\\_ILRI\\_rbr05.pdf](http://www.hpai-research.net/docs/Research_briefs/IFPRI-ILRI/IFPRI_ILRI_rbr05.pdf)

## Day 2: Project findings

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### Disease risk

The project's findings were summarized by Dirk Pfeiffer (Royal Veterinary Collage) in the following presentation.



Main points from the plenary discussion were as follows:

- Where do the main risks lie for the spread of H5N1? Wild birds appear to represent a relatively low risk, while trade in poultry (legal and illegal) is more important. Extensively raised ducks, aquaculture and high densities of poultry are all associated with high levels of disease. Migratory water fowl are implicated in spread over long distances. If there is climate changes or if we destroy their resting grounds, we might dislodge them and change these routes.
- What is the role of different players in disease spread? What is the relative importance of small-scale farmers, large scale producers and traders? As we have gained new information the focus of attention has shifted from one group to another - early in the HPAI pandemic smallholders were blamed, then blame shifted to large producers, now small scale commercial farmers and traders are implicated. There may be a tendency to single out one group as “the problem” while the reality is that many may play a role in transmission – for instance, small scale and large scale commercial producers can be quite tightly linked – and all can potentially be partners in finding solutions to disease problems. **Implication: work with the system that exists and take a holistic approach to risk assessment that takes into account all players in the value chain.**
- Now we are used to seeing production statistics, value chain maps and network maps for poultry, but when HPAI started we did not have them. We were flying in the dark. We now have quite a lot of information on the poultry sector but we do not have a similar level of basic information for other livestock sub-sectors. **Implication: Map the livestock sector before you have a crisis**
- What can be done about markets? Hong Kong is the extreme example, but their authorities have the ability to regulate very strongly. We need to look at what aspects of what Hong Kong has done that can be translate into other contexts. Possibilities to consider - rest days to break the infection cycle, foot baths, cage cleaning, live birds allowed to enter markets but no birds or only certified birds can leave) **Implication: Market hygiene can be improved but the measures to be taken have to be situation specific.**
- What part do institutional factors play in risk? HPAI has highlighted gaps in veterinary services capacity, and the need to have regional as well as national capacity. Lack of capacity influences the accuracy of disease reporting and the ability to interpret and act on reports. **Implication: Regional as well as national institutions need to have greater capacity to understand and respond to disease risk.**
- Is there still a risk of antigenic shift to a virus that could cause a human flu pandemic? The risk is hard to predict. It appears to be a rare event. It may still happen. If it does, we cannot be sure how lethal the reassorted virus will be.
- Is there any information on differences in HPAI susceptibility between local, hybrid and industrial chicken? There is no actual evidence that native chickens are more resistant to HPAI than other genomes.

## Livelihoods impacts

The project's findings were summarized by Marites Tiongco (IFPRI) and David Roland Holst (University of California, Berkeley) in the following presentations.



Tiongco Livelihoods  
Impacts.pdf



Roland Holst  
Livelihoods Impacts.p

Main points from the plenary discussion were as follows:

- The project focussed (at least in these presentations and to a great extent in its research) on impacts on poultry owners (farmers). However, livelihoods impacts from HPAI went beyond loss of income and beyond producers. For example, a study in Manipur showed that only 40% of the impact was on producers. We need to look at poor people all along the value chain. The project did interview people other than farmers but the data have not yet been summarised. It is also important to remember that any action that impacts producers will have multiplier effects across poor communities. **Implication: It is important when planning disease control strategies to take account of all actors along the value chain and potential impacts on their social and human capital as well as income.**
- Project findings demonstrate that consumers are willing to pay a premium for indigenous, traditionally-raised poultry from biosecure sources. This suggests an opportunity to put in place credible market based mechanisms for capturing this premium at a larger scale for the benefit of smallholder. It needs to be determined however how much of this is due to lack of supply and whether the consumer is willing to pay a premium it all the time? The premium seems to be linked to the fact that many of these birds are regarded as festival birds.
- In some cases the government has tried to help smallholders restock and to provide livelihood support. But in spite of this some smallholders have moved away from raising poultry. Smallholders have adapted to chickens dying for a long time. But after extensive culling many have left this source of livelihood. Sometimes they had invested over a generation in infrastructure such as cages, which was destroyed as part of culling in the initial outbreak response. Where culling was applied and many birds were destroyed, this discouraged people from restocking. Planned restocking programmes are hard to manage. On the other hand, when not too many birds are killed, people will manage their own restocking. **Implication: Design culling programmes not to kill more birds or destroy more infrastructure than absolutely necessary.**
- More details on what works and what does not work in communication would be appreciated. For example, what types of education programmes are found useful across different socio-economic and socio-cultural groups? In the experience of Nepal, the same programme does not work across all groups [this question was explored further on day 3].
- When the project was conceptualised there was a great concern about transmission from poultry to people and about the potential of a human pandemic. This research hypothesized that risk of transmission to humans was low, but the potential consequences were catastrophic. Would we be having the same conversation if things had gone differently (worse)? [this point was not discussed here but was followed up in the afternoon session on institutions]

## Institutions and mitigation effects

The project's findings were summarized by Bernard Bett (ILRI) and David Roland Holst (University of California, Berkeley) in the following presentations.



Bett Institutions.pdf



Roland Holst  
Institutions.pdf

Main points from the plenary discussion were as follows:

- There is great diversity in the poultry sector, but the traditional smallholder system is ubiquitous in South and Southeast Asia (the percentage that traditional flocks contribute to national production varies quite widely between countries but the percentage of flocks that are small and traditional is above 90% throughout the region).
- Funding for HPAI control has made it possible to invest in human resource capacity building but this needs to be sustained in order to maintain progress on disease control. Countries already train paravets and the Field Epidemiology Training Program for veterinarians (FETPV) is a regional programme to support training.
- How to create behavioural change in farmers and traders? It is hard to do this when there is a mismatch between what disease control agents recommend and what producers and traders can implement based on their financial capacity, knowledge and the main influential groups for their decisions. However there are some example of closer partnership between public and private sector (e.g. in Pakistan on compensation and chick production), or of civil society voluntarily co-operating (e.g. voluntary surveillance in Thailand). **Implication: an assessment of what farmer and traders can realistically implement needs to be carried out before deciding upon control interventions**
- Safety should be seen as a quality characteristic of poultry products for which consumers are willing to pay a price premium and hence co-finance disease control in a sustainable way without requiring public funds. However, blending of animals by traders in the absence of credible certification and tracing leads to adverse selection for the cheapest birds of lowest quality. **Implication: a credible certification and tracing scheme is needed if birds of reliable quality/safety are to be provided to consumers. This is technically possible but does have a cost.**
- HPAI does not stop at the border and collaboration between countries in the region is essential to prevent disease spread by cross-border trade. There are two kinds of informal cross-border trade – low volume, local movement of birds between family members living on two sides of a border; and large scale, systematic smuggling over long distances. Legalizing (or at least acknowledging) trade and facilitating legal trade would help in better controlling disease. Things that have been tried: cross-border meetings between GMS countries and between West African countries; new systems on the Cambodia border to speed up the time and reduce the cost of legal trade. Problems include: lack of power of police or lack of collaboration between police and veterinary officers; high volume and value of smuggling; difficulty of capturing information about much of the trade; different compensation policies on two sides of a border. **Implication: given the importance of trade in spreading disease, more effort need to be made to deal with cross-border trade. A review of recent data and efforts at co-operation would be valuable.**
- The point was made in the presentation that economies with the highest potential economic damage are under-investing in risk reduction at source– this can be seen from a comparison of the statistical value of lives saved with actual spending on risk reduction. Fund transfer between OECD and developing countries is required. The larger emerging economies, while they may be investing heavily in their own national systems, are under-investing in other countries that may be

reservoirs of disease. Rinderpest is an example that demonstrates the high level of investment at source needed to deal with transboundary diseases (Europe invested heavily in Africa).

**Implication: there continues to be a value in investing in risk management at the source of the risk**

- The global public good of HPAI disease risk control has to link with international governance of public veterinary services. Sustained commitment of the international community is required to cooperate in disease control and it was suggested that an institution may need to be created to distribute the funds for control between countries

## Evaluating risk management options

The project's findings were summarized by Care Narrod (IFPRI) and Joachim Otte (FAO) in the following presentations.



Narrod Risk Management.pdf



Otte Risk Management.pdf

Main points from the plenary discussion:

- There are four aspects to consider when implementing disease control: biological efficacy, economic efficiency, social desirability and political feasibility.
- Vaccination may only buy some time to get other control measures in place, but blanket vaccination binds too many human resources. Vaccination reduces the infection level but increases the period of infectivity. Blanket vaccination in smallholder (scavenging) systems is not likely to work, is very expensive and only reduces the exposure to humans for a short time. Vaccination of commercial flocks (small and large) is more economic and more realistic to implement because flock numbers are smaller. Positive externalities for vaccination (reducing virus shed in one flock lowers the risk for others) have not been considered in the current analysis and might justify subsidies for vaccination. This is another argument for focussing on commercial flocks above a certain size since these have the potential to affect many others.
- Market biosecurity and rest days together with quicker detection of outbreaks are more effective (than relying on vaccination) for control of HPAI in the longer term.
- Restructuring with an industrial replica of integrated small holder farming is not advisable – it creates ideal conditions for emergence of disease, and controlling an outbreak of disease in any one species creates problems for the owners of all.
- Market development is very difficult when avian influenza is around. Cooked products can only be promoted to a certain extent because there is limited demand.
- Forward and backward tracing is essential and still not done due to limited resources.
- **Implications from this session: there are still gaps in HPAI control. There is a need to pilot new approaches and build on advances in quick and cheap diagnostics, information technologies and market developments. Start with communities that have an interest in disease control, work with peer pressure. Vaccination is most effective/sustainable when it is targeted to poultry populations where it has the highest return on investment**

## Day 3: Moving forwards

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### Communication: “a view from the farm”

Chitoor Gopinath (FAO RAP) summarized the challenges in communicating with farmers about “invisible” disease risk, the consequences of the different viewpoints held by technical experts, policy makers and poultry owners, and argued for a more comprehensive approach to communication about EIDs that starts well before an emergency takes hold



Gopinath View from the farm.pdf

### What can we learn from HPAI for other emerging infectious diseases?

This session aimed to provide participants with time to reflect on the many issues discussed during the meeting and apply the ideas that had been shared about HPAI control to the ever-present threat of emerging infectious diseases (EIDs).

Seven working groups were formed. Four of the groups were asked to consider emerging infectious disease (EID) prevention and control in general, while the remaining three were asked to focus on communication strategies for EID prevention and control.

Each group was asked to report on:

- lessons learned and successes from HPAI;
- gaps;
- new approaches or techniques needed for EID prevention and control.

A summary of the group proposals is set out in the following sections. The groups working on lessons for EID control in general made a number of suggestions related to communication, and these have been combined with the points from the groups working specifically on communication.

### ***Lessons learned from HPAI: things we can build on.***

#### **General lessons for disease control**

There is no single solution to EID prevention and control, or even one universal approach – for example, top-down strategies policies work well in some situations and less well in others.

In order to develop good strategies, it is essential to have a sound understanding of the livestock sub-sector (s) involved. It is also important to put HPAI and poultry sector development into a broader context that considers social, technical, economic, environmental and political (STEEP) perspectives.

Some investment in veterinary services was possible thanks to the funding received for HPAI control. Diagnostic capacity has improved. There is some experience of control practices that worked, such as market breaks and quarantine controls (successful in some places)

Early detection is essential so an effective surveillance system is important. This is one of the things that received insufficient attention in HPAI control. Some examples of surveillance systems that were used:

*Participatory disease surveillance and response (Indonesia)*

*Voluntary monitoring (Thailand and Pakistan)*

*Active surveillance “x-ray programme”(Thailand)*

*Compensation as an incentive to report (Nigeria, Thailand)*

Enabling factors needed to strengthen surveillance:

Alertness to disease rumours.

Active surveillance at target areas should be based on risk.

Capacity in epidemiological investigation and analysis.

Related systems such as traceability and early response task force

Collaboration and coordination are essential to effective disease control. This includes working with communities, engaging the private sector, national -> regional -> international links. The One Health Approach is gaining traction.

### **Lessons about communication**

The international community was very successful in communicating message on the severity of the crisis and this resulted in a lot of funding BUT had severe side effects (e.g. panic)

Conflicting perspectives present a challenge to communication. In the HPAI emergency, differing perspectives were evident between human and animal health decision makers and professionals, between the global interest (pandemic threat) and local interest (in most cases animal health). There were institutional challenges to communication within governments, with a predominance of top-down actions.

Countries that had time to think before reacting were able to be better prepared with contingency plans and communications strategies and could learn from others (*note: in this meeting contingency plans were identified as an important form of communication from policymakers to outbreak control managers*).

Communication within countries worked best when a range of people/groups (vets, media, community, government, industry) were involved, educated and clear about their role. Conveying messages from the highest political levels was important, and so was forming a multi-stakeholder Committee for Communications.

The chronology of communication affected the way that messages reached the public. At the onset of the HPAI outbreaks (before 2004) scientists were mostly communicating with each other. Later they began to work with communications specialist to improve capacity for communicating. Media messages were driven by human health at the onset of the crisis, leading to a perception of very high risk. In some countries, after experiencing market shocks, industry took a lead in communicating with the public (and government).

Increasing public awareness is important, to avoid consumer panic and reducing disease transmission. Some forms of media have been successful in information dissemination, others less so. A mixture of media and methods is necessary. Some things that have been tried:

*Joint forums and press release between Ministry of Agriculture and Ministry of Health*

*Community Forum, Live Bird Market forum, Stakeholder forum, School forum, Religious forum*

*Marching campaign*

*TV : by private sector (Thailand) and on various channels*

*Harnessing communication technologies: TV, radio, mobile phones, SMS, email.*

There is a long gap from communication to change of behaviour (e.g. adopting biosecurity, reporting suspicious cases) and self interest is always weighed up against community interest (e.g. fear of culling results in suspicious cases not being reported).

Different cultural backgrounds affect the way that information is received. KAP analysis has helped to reveal some of the local effects (what people knew, how they learned it). HPAI has shown the importance of identifying and training respected and trusted communicators in communities and distributing communication materials widely.

## ***Gaps in HPAI control strategies and practices.***

### **General gaps**

When comparing the list of gaps with the list of lessons learned it becomes evident that even where there is an understanding that certain approaches are desirable, they have not always been put into place.

There is still a lack of commitment to disease control at the political level, and key stakeholders and supporting institutions have been slow to take off. In some cases there has been and still is a missing line of command.

Although there has been some investment in veterinary services, much of the available funding was for short-term actions. Human and financial resources are still lacking for EID prevention and control. Some specific gaps are noted in the following points.

Animal health information systems are inefficient/ineffective, with:

- lack of incentives to report;
- lack of information on what new diseases will occur (where, disease spread, control methods);
- lack of capacity in epidemiology and field operations;
- lack of understanding of the epidemiology of emerging infectious diseases

Technology is also needed e.g. for on-the-spot diagnostics and easier-to-apply vaccines.

Although many countries now have compensation plans in place for HPAI, there has been a history of inadequate compensation – a disincentive to report and a livelihoods concern.

Animal welfare was not properly considered in HPAI control and is still not well reflected in operational plans.

Cross border movements still present a problem.

Although the need for partnerships is well recognized, there are still many gaps. HPAI control was hampered by a poor understanding of the stakeholders involved and the value chain actors, and there is limited engagement with the private sector (although improving in some countries).

There has also been a lack of interdisciplinary understanding/dialogue, which has contributed to some of the above problems.

### **Communication gaps**

There have been communication gaps at all levels. The biomedical community failed to communicate to policymakers that HPAI control is a long term effort. There was a lack of understanding of priorities of the different stakeholders. Risk was not communicated well, at all levels. Generally there was (and is) a lack of understanding about how to impart technical information to stakeholders. There were (and are) few people with good communication skills within the animal health community.

In spite of considerable experience gained from HPAI, H1N1 and much earlier from BSE we are still not very sure how to communicate with the public.

Quite a limited range of tools and approaches were used in any one country – although globally there is growing experience of different tools and methods.

Donors co-ordinated poorly in communicating with countries. Experiences were related during this meeting of several donors bilaterally funding the same country and each advocating for a different emphasis on control methods and different ways of dealing with communication.

All in all, the crisis was not helpful to constructing positive dialogue and communication that could lead to long term behaviour change.

### ***New approaches and tools***

#### **General approaches and tools for EID prevention and control**

There is a need for better understanding of the drivers of emergence and spread of EID

Surveillance and reporting need attention. Some specific suggestions were as follows:

Improved/targeted surveillance for EID in at risk livestock/human populations.

Expanded surveillance at critical points of the value chain.

Innovative means of reporting to supplement regular lines of reporting.

New triggers for disease outbreak investigation (feed sales, disinfectant sales etc).

Continued work is needed on technologies. In the case of vaccination, research work on multi-pathogen vaccines and delivery mechanisms

Collaboration and stakeholder involvement need to improve. Regional, international and cross-border collaboration are important in horizon-scanning and disease control. More use by veterinary services of expertise from other disciplines (sociology, anthropology, etc) would help to avoid repeating some of the past mistakes. Stakeholder involvement at an early stage and a focus on more of the actors in the market chain is recommended when drawing up prevention and control plans.

A strong recommendation was made to operationalize the “One Health” approach at country level. One working group of AHPCA and FAO RAP participants made specific suggestions on how this should be done:

Joint committee/working groups among ministries and stakeholders.

Regular meetings during peace time.

Regular information sharing.

Joint strategies and work plans for preparedness and simulation exercises.

Coordination mechanism in place.

During emergency time:

A joint task force working together according to an agreed work plan and coordination mechanism. The coordination mechanism includes the following:

*Liaison person*

*Roles and responsibilities*

*Leadership during emergency operations according to situation*

*Joint activities including risk communication*

*Communication with international communities*

#### **Related to communication**

One important lesson from HPAI is to put in the building blocks of communication (these include writing contingency and operational plans, building communication channels, building up tools and skills) between crises rather than waiting for the crisis to start. Experience with this project has shown the value of reviewing communication channels and bottlenecks.

A challenge was thrown out to the international community to be more organised about its own communication (endorsed by those meeting participants who work in international organisations).

Communication efforts need to be effective at all levels. For instance, multi-sectoral task forces/working groups and inter-ministerial emergency teams are helpful when a crisis is pending or

taking place. Clear translation of science into policies is important (although a challenge when scientists themselves are not always good risk communicators). Advocacy (of the right kind) is needed to get action – this means meetings with policy leaders and change captains.

The importance of communication efforts at community level was emphasized. For example, moving from prescriptive to participative and community-led communications. Building communication networks at community levels. Building technical and communication capacities in communities and developing tools to build community capacity. Dramatizations and farmer's schools may be useful.

The role of children's education has not been sufficiently exploited, in communicating the risk of EID and changing behaviour. More efforts are needed to incorporate animal health issues and communication skills into the education curriculum of schools and clubs.

The role of the media can become more helpful if partnerships are built with TV and other media networks in increasing awareness about EID

There is a need to build up communication capacity and skills in government, vets, researchers and field operators, and to appreciate the priorities of others since these affect the way they hear and understand. Simulations exercises (in areas with sufficient field staff) can be helpful.

There is a need to find a wider range of cost-effective communication methods and channels and to experiment with different ways of conveying messages to stakeholders. Compiling of EID communication materials is a role that could be taken on by national communications committees, one of the regional co-ordination bodies and/or an international organisation.

On the subject of disease reporting, while compensation appears to have a role in encouraging reporting it is only a partial solution. There is a need to create a value for reporting beyond the possibility of compensation.