Assessing Policy Responses to the Threat of Contagious Diseases of Animal Origin

J. Otte, D. Roland-Holst, D. Pfeiffer

1. Project Summary

Highly pathogenic avian influenza (HPAI) associated with the H5N1 virus strain first occurred in Viet Nam and Thailand in late 2003, causing severe mortality in affected flocks. The disease has recurred in 2004 and 2005, and is now considered endemic to the region. Given that the virus has crossed the species barrier between poultry and humans and caused human fatalities, concerted efforts are being mustered by national governments and international agencies to control the spread of the disease through a variety of measures, which may also include the need for a ‘restructuring’ of the poultry industry eliminating smallholder backyard producers.

Devising evidence-based responses to animal and human health risks that balance the interests of a wide variety of national and international stakeholders requires thorough analysis of epidemiological and economic information (past and present), development of scenarios of disease spread, their likelihood of occurrence, the identification of critical control points and interventions, the costs and impacts of the latter, and, finally, negotiation between stakeholders at different levels, ranging from local, through national to international. Appropriate social investments to reduce health risk locally and nationally can have the very significant dividend of improving smallholder commercial viability, a pro-poor benefit that stands in sharp contrast to the displacement effects many of the proposed control strategies threaten to cause.

The research activities follow a systematic approach that combines rigorous epidemiological and economic analysis with risk management, an approach in the following referred to as Strategic Pathogen Assessment for Domesticated Animals (SPADA). The epidemiological component focuses on development of stochastic simulation models of disease transmission to identify
control policies that might be beneficial in the reduction of the transmissibility of HPAI at the local, sub-national and national level. The results of these models will be used as inputs into the economic component, which is designed to assess the ramifications of the disease impacts beyond the animal production systems themselves. The risk management component involves localized design of monitoring, incentive, and penalty mechanisms for disease reporting combined with traceability schemes, the aim of which is to limit downstream disease risks and improve upstream product quality characteristics.

To develop and apply the above approach, a three-year project of collaborative research and policy support is required, built around a consortium of internationally renowned research institutions partnering with local counterparts from HPAI affected countries of the Mekong region (Thailand, Viet Nam, Cambodia and Lao PDR).

The project combines research with policy influence, risk communication and capacity building. Initially, the project intends to focus on taking forward relevant on-going PPLPI activities in Thailand and Viet Nam, countries most severely affected by HPAI in the region, and to subsequently expand activities into Cambodia and Lao PDR.

2. Research Partners

International Research Coordination

International experts in economics, animal health epidemiology, and digital data analysis/mapping have been engaged to form the core team of international research coordinators, namely:

- Professor David Roland-Holst, University of California, Berkeley, for economics;
- Professor Dirk Pfeiffer, Royal Veterinary College, in the field of epidemiology; and
- Michael Epprecht, ex-IFPRI, Ha Noi, for geographical data management and digital data analysis

National Research Institutes

Building and building on national research capacity is one of the main objectives of this research initiative and national collaborators have been selected both in Thailand and Viet Nam.
In Thailand, the Thai Research Foundation has provided funds to:

- Chulalongkorn University to take the lead in the economic component of SPADA, and
- Kasetsart University to develop the epidemiological component of the HPAI research agenda.

In Viet Nam, research is closely co-ordinated with the Department of Animal Health of the Ministry of Agriculture and Rural Development (MARD), the Department of Animal Production and the Center for Agricultural Policy (CAP) – Institute of Policy and Strategy for Agricultural and Rural Development (IPSARD), of the same ministry.

3. Research Meetings, Workshops & Missions

Since inception in mid-2005, a number of workshops and meetings have been held in Viet Nam and Thailand to ensure political ‘buy-in’ and mobilize local scientific expertise. Table 1 provides an overview of the meetings and workshops conducted within the SPADA research agenda.

<table>
<thead>
<tr>
<th>Venue</th>
<th>Date</th>
<th>Topic / objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangkok, Novotel</td>
<td>29.06.2005</td>
<td>Inception workshop for Thailand</td>
</tr>
<tr>
<td>Ha Noi &amp; Ha Noi province</td>
<td>18.10.2005 to 28.10.2005</td>
<td>Mission by R. Soares Magalhaes to liaise with Dept of Animal Health and review poultry production and outbreak information</td>
</tr>
<tr>
<td>Ha Noi, La Thanh Hotel</td>
<td>20.10.2005</td>
<td>Inception workshop for Viet Nam</td>
</tr>
<tr>
<td>Bangkok, Chulalongkorn University</td>
<td>21.03.2006</td>
<td>Presentation of preliminary research results of epidemiology and economics component of SPADA</td>
</tr>
<tr>
<td>Ha Noi, La Thanh Hotel</td>
<td>12.06.2006</td>
<td>Presentation of preliminary research results of epidemiology and economics component of SPADA</td>
</tr>
<tr>
<td>Bangkok, Kasetsart University</td>
<td>14.06.2006 to 15.06.2006</td>
<td>Workshop on HPAI-related risk analysis and risk modeling</td>
</tr>
<tr>
<td>Bangkok, Chulalongkorn University</td>
<td>17.07.2006 to 21.07.2006</td>
<td>Workshop on the application of CGE models to economic analysis of HPAI</td>
</tr>
<tr>
<td>Ha Noi &amp; surrounding provinces</td>
<td>09.10.2006 to 20.10.2006</td>
<td>Mission by R. Soares Magalhaes to prepare epidemiological component of traceability study with Vietnamese counterparts</td>
</tr>
<tr>
<td>Ha Noi &amp; surrounding provinces</td>
<td>23. and 24.10.2006</td>
<td>Mission by D. Roland-Holst to prepare economic component of traceability study with Vietnamese counterparts</td>
</tr>
<tr>
<td>Bangkok, Kasetsart University</td>
<td>24.10.2006 to 25.10.2006</td>
<td>Workshop on basic concepts of infectious disease modelling by R. Soares Magalhaes</td>
</tr>
<tr>
<td>Ha Noi &amp; surrounding provinces</td>
<td>02.01.2007 to 13.01.2007</td>
<td>Mission by J. Ifft to gather background information to plan poultry market structure survey</td>
</tr>
<tr>
<td>Venue</td>
<td>Date</td>
<td>Topic</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>---------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Ha Noi &amp; surrounding provinces</td>
<td>31.01.2007 to 08.02.2007</td>
<td>Mission by R. Soares Magalhaes to conduct PRA and analyse questionnaire survey with Vietnamese counterparts for the design of the traceability study.</td>
</tr>
<tr>
<td>Bangkok, Kasetsart University</td>
<td>09.02.2007</td>
<td>Follow-up consultation meeting by R. Soares Magalhaes with researchers at Faculty of Veterinary Medicine on disease modelling and quantitative risk assessment.</td>
</tr>
<tr>
<td>Phnom Penh</td>
<td>25.03.2007</td>
<td>Mission by D. Roland-Holst to initiate research dialogue with potential Cambodian counterpart institutions.</td>
</tr>
<tr>
<td>Ha Noi</td>
<td>15.06.2007</td>
<td>Mission by D. Roland-Holst and J. Ifft to initiate poultry market surveys in Ha Noi and surrounding provinces.</td>
</tr>
<tr>
<td>Ha Noi</td>
<td>21.06.2007</td>
<td>Workshop with D. Roland-Holst, R. Soares Magalhaes, research assistants, and local collaborators, reviewing progress to date, planning survey inception, and discussing technical requirements</td>
</tr>
<tr>
<td>Ha Noi &amp; surroundings</td>
<td>18.06.2007 to 30.06.2007</td>
<td>Mission by R. Soares Magalhaes to present epidemiological findings and to implement field activities of the traceability study.</td>
</tr>
<tr>
<td>Bangkok, Kasetsart University</td>
<td>02.07.2007 and 03.07.2007</td>
<td>Follow-up consultation meeting by R. Soares Magalhaes with researchers at Faculty of Veterinary Medicine on disease modelling and quantitative risk assessment.</td>
</tr>
</tbody>
</table>

4. Research Reports

Soares Magalhaes, R. (01/06). Development of the epidemiological component of SPADA (Strategic Pathogen Assessment for Domestic Animals)

Roland-Holst, D., Otte, J. and Pfeiffer D. (04/06) Initial assessment of the impact of poultry sales and production bans on household incomes in Vietnam

Soares Magalhaes, R., Pfeiffer, D., Wieland, B., Dung, D. and Otte J. (10/06) Commune-level simulation model of HPAI H5N1 poultry infection and control in Viet Nam.


Tung D.X. and A. Costales (03/07) Market participation of smallholder poultry producers in Northern Viet Nam.

Soares Magalhaes R., Quoc H.D., and Lan L.T. (05/07). Farm gate trade patterns and trade at live poultry markets supplying Ha Noi: Results of a rapid rural appraisal.


5. Contacts

For additional information, please go to: http://www.fao.org/ag/pplpi.html or contact:

**Joachim Otte**  
Food and Agriculture Organization  
Animal Production and Health Division  
Viale delle Terme di Caracalla 00153 Rome, Italy  
E-mail: joachim.otte@fao.org

**David Roland-Holst**  
Rural Development Research Consortium  
223 Giannini Hall University of California Berkeley,  
CA 94720 - 3310 USA  
E-mail: dwrh@rdrc.net

**Dirk Pfeiffer**  
Royal Veterinary College  
Epidemiology Div., Dpt. Veterinary Clinical Sciences  
Hawkshead Lane, Hatfield, Herts, AL9 7TA, UK  
E-mail: pfeiffer@rvc.ac.uk

**Michael Epprecht**  
Private Consultant  
2B Nguyen Khac Hieu  
Ha Noi, Vietnam  
E-mail: michael@epprecht.org