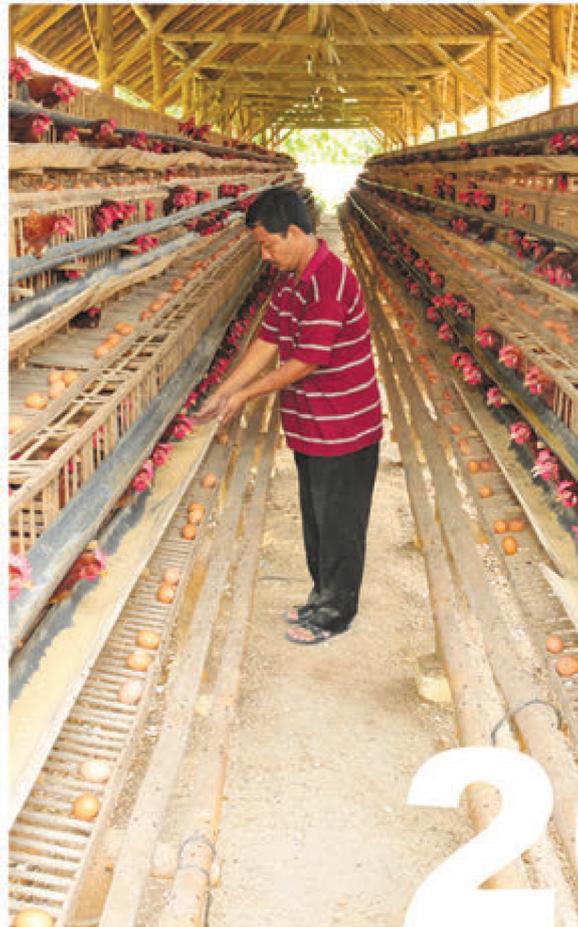




Food and Agriculture  
Organization of the  
United Nations

# Avian Influenza Control Programme in Indonesia



# 2009

## Annual Report

Activities in support of the Ministry of Agriculture of the Republic of Indonesia





Photo: FAO/Indonesia/Primanto

## Foreword

Poultry production, and its associated activities, account for around one percent of Indonesia's gross domestic product and provide the majority of animal protein consumed by 232 million Indonesians. A complex array of poultry enterprises, ranging from intensive commercial enterprises, to small-scale semi-intensive broiler and layer enterprises, to small backyard flocks supply poultry meat and eggs to Indonesian consumers, predominantly through around 13,000 traditional markets countrywide. Some 60% of all Indonesian households keep poultry for food, additional income, entertainment and ceremonial purposes.

Since Highly Pathogenic Avian Influenza (HPAI) was detected in Indonesia in 2003, the disease has infected poultry in 31 out of 33 provinces, caused the deaths of millions of poultry, and disrupted the livelihoods of large numbers of people dependent on poultry keeping. Outbreaks continue to be reported regularly on islands with dense human and poultry populations, such as Java and Sumatra.

HPAI presents a major challenge to the country. An annualized poultry population of approximately 1.5 billion, a large culturally and ethnically diverse human population of around 232 million, a preference for purchasing poultry products from live bird markets, and a decentralized governance system, which has included devolution of the responsibility for controlling animal diseases to more than 450 autonomous districts/municipalities, have all contributed to the persistence of the disease.

The FAO Emergency Centre for Transboundary Animal Diseases (ECTAD) Indonesia works to enhance the capacity and ability of the Government of Indonesia to implement its Avian Influenza Control Programme to sustainably control HPAI in order to help safeguard the health and livelihoods of the Indonesian population and reduce the global pandemic threat.

This 2009 Annual Report provides an overview of the FAO activities carried out in collaboration with and in support of the Ministry of Agriculture and local government livestock services in Indonesia. Achievements in the key areas of enhanced management of the HPAI control programme; improved surveillance, control and prevention of HPAI in village-based poultry, in the commercial poultry industry and along the poultry marketing chain are presented.

The activities and achievements described in this report were funded by many donors and their contribution and commitment are gratefully acknowledged.

## Contents

### 3 » **Coordinated and enhanced management of the HPAI control programme**

- National Veterinary Service Strategy and workplan
- Transition of district-based PDSR system into an integrated disease control system
- Integrated information system for the national control programme
- Analyses of the Participatory Disease Surveillance and Response (PDSR) Database
- Continuing Education
- OFFLU (OIE-FAO Network of Expertise on Animal Influenza)
- Regional Workshop on Funding Mechanisms for Outbreak Containment and Compensation
- Enhanced Outbreak Investigation
- Training in Geographic Information Systems
- Bali HPAI Control

### 7 » **Sustainable surveillance, prevention, and control of HPAI in village poultry**

- PDSR and LDCC Support
- PDSR Evaluation
- Village Biosecurity, Education and Communication (VBEC)
- Java Village Surveillance
- Information, Education and Communication

### 10 » **Enhanced surveillance, control and prevention of HPAI in the commercial poultry industry**

- Indonesian National Poultry Quality Improvement Program
- Operational Research in Indonesia for More Effective Control of Highly Pathogenic Avian Influenza
- Pilot Intensified Vaccination Programme (InVak)
- Biosecurity Training of Trainers (ToT)
- Improving Biosecurity in Commercial Poultry (IBCP) South Sulawesi
- Prevalence study in potential reservoir populations in western Java, Central Java, and Yogyakarta
- Serosurveillance for Avian Influenza in Ducks in Kalimantan

### 14 » **Improved surveillance and control along the poultry marketing chain**

- Poultry Movement Study
- Market and collector yard surveillance programme
- Biosecurity and sanitation interventions in selected live bird markets in Tangerang
- Decontamination of live bird markets, wholesale yards and sites of production
- DKI Jakarta poultry market restructuring

### 17 » **Conclusions**

### 18 » **Abbreviations & Acknowledgements**



## Coordinated and enhanced management of the HPAI control programme

### **National Veterinary Service strategy and work plan**

A major focus of the FAO Avian Influenza (AI) Control Programme is to assist the Government of Indonesia to strengthen animal health services by transitioning to more integrated veterinary services nationwide. To this end, a concept note on the development of a National Veterinary Service (NVS) Transition Strategy has been drafted for discussion with the Directorate of Animal Health (DAH). The goal will be to transition current government animal disease control activities into a coordinated and sustainable NVS for the prevention and control of all diseases of national importance. In the framework proposed, a task force (established by DAH in late 2009) comprising key Indonesian stakeholders would lead the NVS strategy and work plan development. To help expedite planning after the creation of the task force, a NVS Facilitator will be recruited. The proposed approach would fully support the practical implementation of the recently enacted Livestock Production and Animal Health Act No. 18/2009, which establishes new regulations for the provision of veterinary services.

### **Transition of district-based Participatory Disease Surveillance and Response (PDSR) system into an integrated disease control system**

Planning authorities and livestock services from all districts of South Sulawesi participated in a workshop this year to discuss the future of Veterinary Services in the province. Key outcomes included strong support for the transition of the PDSR system to a locally-supported system, with particular emphasis on strengthening capacity from district to sub-district and village level to report and respond to livestock disease, as well as a longer term strengthening of district level animal health centres.

To support the transition of the PDSR system to a more comprehensive disease control system, a concept proposal for a pilot activity in South and West Sulawesi has been developed. It aims to define a post-project structure that is cost-effective and consistent with the long term requirements and structures of local, provincial and national governments. A PDSR Transition Facilitator is working with key stakeholders from government and community to ensure that the transition of the PDSR system proceeds in line with local priorities and policy, and in harmony with national policy.

A draft outline of a syndrome-based reporting system using existing local structures at sub-district and/or village levels has also been developed and will be trialled in two districts in South Sulawesi during 2010.

### **Integrated information system for the national control programme**

Technical assistance was provided to support the continued operation and refinement of the PDSR database and the development and tracking of PDSR indicators with data derived from that database. 31 Local Disease Control Centre (LDCC) databases operate at provincial level and contain field activity reports of PDSR officers visiting local villages. These databases were upgraded with additional standard reports and improved logistics tracking and reporting functions. Open source Geographic Information Systems (GIS) software is included within the PDSR database programme, so all LDCCs now have the ability to display and print a map showing village polygons shaded to represent HPAI status in each village. Reports available at the LDCC level facilitate disease control management at the LDCC by providing information on village HPAI status, planned and completed activities (surveillance, control, prevention and monitoring), background information on each village, personnel (travel plans and travel reports) and logistics (personal protective equipment and rapid antigen test kits). The reports also serve as the major source of programme monitoring information for the HPAI Campaign Management Unit (CMU), LDCC coordinators and FAO, and help facilitate effective management and planning of the PDSR programme.

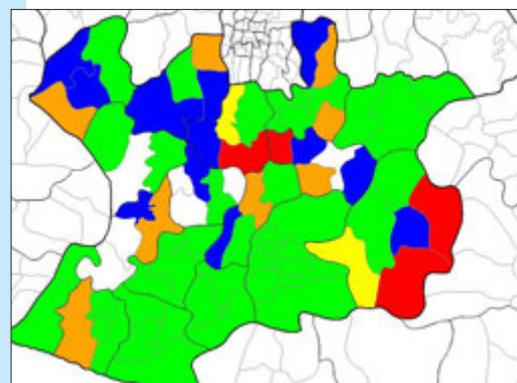
Copies of the PDSR database and associated report generation software were installed in computers at the CMU and Sub-Directorate of Disease Surveillance of DAH. Four central government staff members were trained in how to use the



Photo: FAO/Indonesia/Aditya



Photo: FAO/Indonesia/Aditjondro



Example Map  
Photo: FAO/Indonesia



software and generate standard PDSR reports. LDCC performance monitoring reports are now produced on a monthly basis.

### ■ **Analyses of the Participatory Disease Surveillance and Response (PDSR) Database**

Determining the relative importance of risks for HPAI in infected countries will provide a better understanding of the mechanisms of disease spread. This will in turn provide information that will allow surveillance activities for HPAI to be better targeted. This year spatial and temporal analyses of surveillance information in the PDSR database for the period 1 April 2008 to 28 February 2009 were conducted to describe patterns of infection and to identify and rank likely risk factors for HPAI. The analyses identified the number of layers, the number of broilers, the number of ducks and the proportion of land area used for rice production as potential risk factors for the occurrence of HPAI in village poultry that warrant further investigation, and indicated areas of Central Java where disease occurrence does not appear to be associated with any of the spatial factors included in the analysis.

Descriptive analyses were also conducted to determine the coverage of PDSR surveillance activities and the effectiveness of the PDSR programme. The analyses provided useful indicators of success in HPAI surveillance and control. In general, the analyses found that surveillance and control have been efficient and comprehensive. There is also a better understanding now of the importance of passive surveillance for finding HPAI cases.

### ■ **Continuing Education**

The joint GOI-FAO Training Team is responsible for delivery of targeted continuing education for local government disease managers and field officers. During 2009 the team conducted Introductory Training courses for PDSR Officers; Continuing Education Training Workshops; Continuing Education sessions for PDSR officers and LDCC Coordinators; a Training Workshop for sub-district HPAI control teams in DKI Jakarta; Sample Collection trainings for Market Surveillance Officers and collector yard sampling teams; and Sample Submission Training Workshops. They also participated in a PDSR/Continuing Education Training Workshop for Training of Master Trainers; PDSR Refresher Training for Master Trainers; and a Biosecurity Training Workshop.

Members of the Training Team also supported LDCC and PDSR officers through participation in LDCC monthly meetings and District Focal Person meetings, as well as assisting overall operational budget preparations and review of PDSR activity forms in the nine LDCCs on Kalimantan and Sulawesi supported by the World Bank project through the Directorate General of Livestock Services (DGLS). They also participated in the Evaluation Workshop in Manado (North Sulawesi) for the World Bank-funded LDCCs, the National Coordination Workshop for HPAI at Bandung (West Java), and the Decision Makers' Meeting in Bengkulu province.

During 2009 the GOI-FAO Training Team was made up of 56 Master Trainers, who had originally served in the programme as PDSR officers, and one international Training Specialist.

### ■ **OFFLU (OIE-FAO Network of Expertise on Animal Influenza)**

This project aims to collect a range of Indonesian HPAI virus isolates from both villages and commercial enterprises; to conduct antigenic and genetic virus characterization; to challenge test antigenic variants against current vaccines; to select updated and efficacious vaccine strains; and to contribute to technical recommendations for a vaccination strategy for Indonesia.

A key objective of the project is to build national capacity in phenotypic characterization of virus isolates. Workshops on molecular and antigenic analysis, serology and virus typing for antigenic cartography, haemagglutination inhibition (HI) serology and antigenic cartography were conducted during 2009. Participants



Photo: FAO/Indonesia



Photo: FAO/Indonesia/Savitri



Photo: FAO/Indonesia



included scientists from the Disease Investigation Centres (DICs), the Pusvetma vaccine production laboratory, the National Veterinary Drug Assay Laboratory, and commercial poultry industry, as well as academia. To improve the collection and management of data on field virus isolates, a user acceptance workshop was held to support the introduction of a new laboratory information management system 'InfoLab Plus'.

Other project activities conducted this year include the OFFLU Technical Review attended by both national and international delegates (including a public forum on poultry vaccines for HPAI in Indonesia); further genetic and antigenic characterization of 2008 isolates at the FAO-OIE international reference laboratory, AAHL in Geelong, Australia; and preliminary vaccine challenge tests using low pathogenic certified reverse genetics vaccine master seed constructs at SEPRL.

The assessment of 'Costs and Cost-effectiveness of Vaccination Strategies in Indonesia' has been completed, in conjunction with Operational Research for HPAI, and a complementary study on the 'Assessment of Farm Level Financial Incentives and Willingness to Pay for HPAI Vaccination in Indonesia' will be undertaken in 2010.

### ■ **Regional Workshop on Funding Mechanisms for Outbreak Containment and Compensation**

The objectives of this workshop, sponsored by United States Department of Agriculture (USDA) and FAO, were to introduce innovative proposals for sustainable monetary and non-monetary mechanisms for funding outbreak containment and compensation; to increase understanding of the roles which public and private organizations, both national and international, could assume in outbreak containment and compensation schemes; and to exchange lessons learned on the implementation of existing outbreak containment and compensation mechanisms. One hundred representatives from Bangladesh, Brunei, Cambodia, Canada, Germany, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Spain, Thailand, Timor Leste, USA, Venezuela, and Viet Nam participated. Recommendations from the workshop included (1) establishing clear regulatory and legal frameworks that facilitate the development of a formal ongoing compensation process; (2) developing the roles of government and industry to improve the mechanisms of sharing of risks, responsibilities, and authority; (3) introducing livestock disease insurance; and (4) evaluating the models for cost-sharing and compensation for animal health emergencies that operate successfully in other countries.



Photo: FAO/Indonesia



Photo: FAO/Indonesia/Primanto



Photo: FAO/Indonesia/Primanto

## Enhanced Outbreak Investigation

In selected outbreaks of HPAI, for instance where actual or suspected human involvement is suspected, infection of non-poultry species is reported, or in areas not previously or recently affected, effective HPAI control depends on timely identification of local risk factors for transmission of the virus. The aim of the Enhanced Outbreak Investigation concept is to train the MOA and local government staff in an epidemiological approach to disease investigations and to supply them with the necessary Personal Protective Equipment and sampling equipment. Teams will be trained to respond to particular outbreaks on request of provincial or district government. Investigator kits are being assembled and village and commercial investigation forms are being finalised. An investigations database will be developed.

In late 2009 FAO was requested by DAH to assist in an investigation of an outbreak of HPAI in a collector yard in Jakarta. The investigation was carried out as a training exercise with staff from the Sub-Directorate of Disease Surveillance and CMU. DAH have requested that this process be formalised between DAH and FAO to use enhanced outbreak investigations as capacity building exercises in addition to the identification of possible risk factors for outbreaks of HPAI.



Photo: FAO/Indonesia

## Training in Geographic Information Systems

Training courses in mapping using ArcGIS Software were held at the DIC Region 3 (Lampung), DIC Region 2 (Bukittinggi, West Sumatra) and DIC Region 5 (Banjarbaru, Kalimantan) for DIC and LDCC staff. The FAO GIS specialist designed and conducted the training which included modules on basic theory of Global Positioning Systems (GPS), inputting data into the GPS device, GPS Troubleshooting, basic theory of remote sensing and GIS, introduction to GIS Software (ArcGIS 9.2), making a map layout, and exporting the results of the map layout into other formats.

## Bali HPAI Control

Bali is classified as a 'Special Protection Area' in the DGLS National HPAI Operational Plan. It is therefore a high priority area for which objectives and key actions have been defined. With technical assistance from FAO and residual funds from the Japan Trust Fund project (OSRO/RAS/602/JPN), CMU-DAH prepared a Bali HPAI Control Programme which was commissioned and ratified by national, provincial and district livestock authorities during November 2009. Its ultimate objective over a two year period is to achieve a significant and sustained decrease in the prevalence of HPAI virus circulating in the Bali poultry chain. However, four short term objectives must be achieved first:

- (1) establish an integrated disease control structure;
- (2) conduct a border survey, risk assessment and risk mitigation policy review to understand and manage HPAI threats from smuggled live birds;
- (3) conduct a random village survey to estimate the actual HPAI situation in Bali and identify high priority control districts; and
- (4) conduct a live bird market network analysis to describe virus pathways within which local control projects should operate. Funding from the Japan Trust Fund ceased in December 2009, and FAO is hopeful that objectives 1-4 can be completed with assistance from the AusAID-funded OSRO/INS/701/AUL project.

These four short term objectives will be completed by mid 2010.



Photo: FAO/Indonesia



Photo: FAO/Indonesia



# Sustainable surveillance, prevention, and control of HPAI in village poultry

## ■ PDSR and LDCC Support

The PDSR system now covers 331 districts in 27 of 33 provinces of Indonesia through a network of 31 LDCCs. During 2009 FAO continued to provide technical and operational support for PDSR teams and LDCCs on Java, Sumatra, Bali, and the provinces of South Sulawesi and West Sulawesi on Sulawesi Island. Funding of eight LDCCs in Kalimantan and the remainder of Sulawesi was transferred to government responsibility (under both national and local government budgets) in 2009. Of special note was the establishment of the first LDCC fully funded by GOI in Nusa Tenggara Barat province in January 2009. This milestone was followed by the establishment of a second government-funded LDCC in Nusa Tenggara Timur (NTT) province, in December 2009. Using GOI's National Budget, 27 local government officers have become PDSR certified in NTT.

The revised PDSR database which started operating in April 2008 continues to provide increasingly useful statistics and disease trends. Analysis of the database has revealed that over 95% of outbreaks of HPAI are detected by the PDSR teams following a call-out based on information from the community or village authorities. This demonstrates an evolution of disease detection to a more sustainable "farmer reporting system".

Decision Makers' Meetings were conducted in the provinces of South and West Sulawesi, West Sumatra, Jambi, Kepulauan Bangka Belitung and Bengkulu during 2009. The purpose of the meetings was to engage with local government on the control of HPAI and to advocate for the long-term sustainability of animal disease control services. In all regions HPAI control was identified as a top priority of the local governments, with disease management undertaken through surveillance, outbreak control, and prevention activities, and budget-sharing through national and regional budgets. The meetings recommended strong support from the local government for cost-sharing to improve sustainability of the PDSR activities carried out by local government livestock services.

A cost analysis of the funding components of FAO HPAI control activities was completed along with the mapping of feasible funding from the GOI. In addition, a gap analysis of the HPAI control activities by all donor agencies and partner organizations in Indonesia has been submitted to the DGLS/DAH to encourage the central government to take urgent action in budget sharing for the sustainability of HPAI control activities. The central government budget for 2010 already includes funding to support local government HPAI control activities, including PDSR activities.

In South and West Sulawesi, locally produced low-cost sample submission systems to facilitate safe transport of samples, and re-useable field protective clothing kits distributed to all PDSR officers were used in the field during an extensive HPAI outbreak affecting 14 districts and municipalities in 2009. The new sample submission system facilitated submission by South and West Sulawesi PDSR officers of a total of 30 samples of viral swabs in transport media from 7 districts to the DIC during the initial outbreak, from which seven viruses were isolated.



Photo: FAO/Indonesia/Primanto



Photo: FAO/Indonesia

Graph: PDSR surveillance visits and HPAI diagnoses, Indonesia 2009

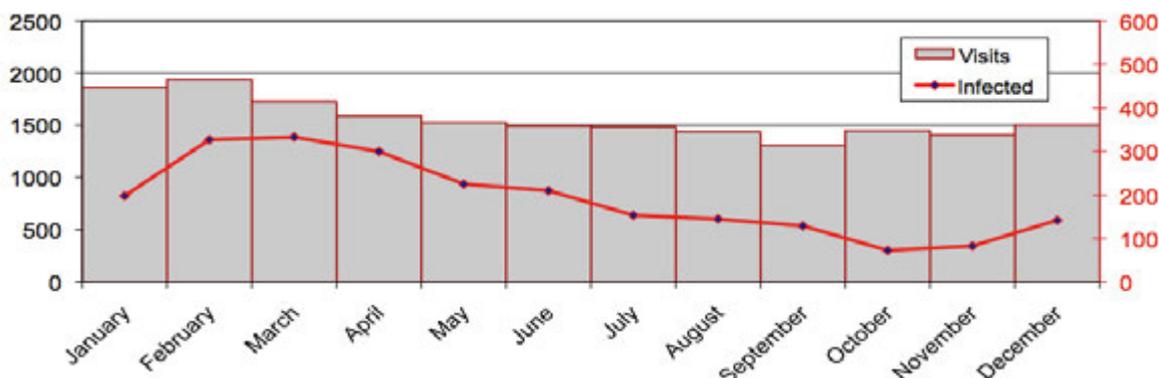




Photo: FAO/Indonesia



Photo: FAO/Indonesia/Hafiz



Photo: FAO/Indonesia/Prabandari

## ■ PDSR Evaluation

An external evaluation of the PDSR Programme was carried out in Indonesia as part of the second Real Time Evaluation of the FAO AI programme globally. The purpose of the evaluation was to “assess the relevance, efficiency, effectiveness, and sustainability of the PDSR programme in Indonesia and make recommendations to improve the work undertaken”. Two surveys were conducted to provide input to the evaluation, field visits were made to several project sites and a stakeholder meeting was held to gain a better understanding of the overall FAO AI Control Programme and gather inputs from stakeholders and partners.

The evaluation team concluded that “the PDSR initiative for the detection and control of HPAI has had a significant impact on veterinary services in Indonesia, and on the broader understanding of the role of participatory epidemiology processes of investigation and response in livestock disease surveillance, control and prevention.” The team added that “the PDSR programme has played an important role in responding to the HPAI outbreaks in Indonesia. It has injected a renewed lease of life to animal health services in Indonesia, and extended services to rural and urban communities in many regions of the country.” A number of recommendations were made by the evaluation team and ECTAD Indonesia is working with government partners to ensure continued improvement of the programme.

## ■ Village Biosecurity, Education and Communication (VBEC)

Evidence suggests that many aspects of the way villagers live with, produce, trade and harvest poultry contribute to the ongoing transmission of HPAI in these village environments. The VBEC programme works with communities throughout South and West Sulawesi to improve awareness of how disease is transmitted, and to identify and pilot locally-suitable methods and specific activities to change high risk behaviour.

A socio-cultural assessment, carried out during July-September 2009, aimed to gather qualitative and quantitative information on the social and cultural aspects related to poultry raising; perceptions, beliefs and actions regarding poultry disease and its control; how poultry moves into and out of the village; and identify target groups for an Education, Information and Communication programme. Six pilot villages were selected to represent poultry production systems, languages and cultures present in South and West Sulawesi.

The results of the assessment have been used to contribute to development of biosecurity action plans in pilot villages. A community workshop was implemented in each pilot village, and a written Biosecurity Action Plan agreed. The results of the assessment will also contribute to development of targeted communication materials during the first quarter of 2010 as well as a plan for the targeted roll-out of communication strategies that are developed for villages throughout South and West Sulawesi.

A simple visual training module “How does a germ move?” has been developed and a group of district-based veterinarians, mostly PDSR officers, trained in its use. These field officers will become a technical resource in each village for the further roll-out of village-based biosecurity initiatives.

District livestock services staff were involved in all parts of the process in each pilot village, to ensure technical soundness of planned actions, and to further develop the relationship between local government and community action. The programme works closely with the PDSR programme to improve reporting of disease from villages, and to ensure technical input by district livestock services into village-developed biosecurity initiatives.

## ■ Java Village Surveillance

Random village prevalence surveys can provide statistically valid estimates of HPAI infection rates, so they are potentially a useful strategic surveillance tool. However, surveys can be logistically demanding and expensive. The Java Village Surveillance study was developed to assess the prevalence of HPAI in village-based poultry in Java and assist the HPAI Control Programme to identify a cost-effective means of conducting HPAI active village surveillance via local government.

A pilot village prevalence survey was conducted in the district of Tasikmalaya, West Java to test the practicability of conducting random village surveys for influenza virus infection in household chickens. Survey visits were made to households in 129 of 350 villages over a period of two weeks and a total of about 150 Dinas sub-district veterinary and para-veterinary staff were deployed. Ten sampling teams were trained to collect samples when sick birds were found. A similar survey was also completed in Banyuwangi District, East Java during 2009 and surveys will be conducted in four more districts in West and East Java in 2010.

As part of the structured village surveillance study in the District of Tasikmalaya, village chickens and ducks were surveyed for sub-clinical infection with H5-subtype influenza viruses. Laboratory analyses and results are pending.

## ■ Information, Education and Communication

In response to requests from local government officers for more compelling and entertaining methods of conveying the important messages of HPAI prevention and control, animated versions of the flipcharts used by PDSR were produced this year. In addition, a PDSR promotional video and a video on the Pilot Intensified Vaccination Programme (InVak) were also produced. These showcase the activities and achievements of the two programmes and will be used to promote the programmes to stakeholders. Other materials in the final stages of production include a Training Video for PDSR Officers, and a video on how poultry diseases spread.

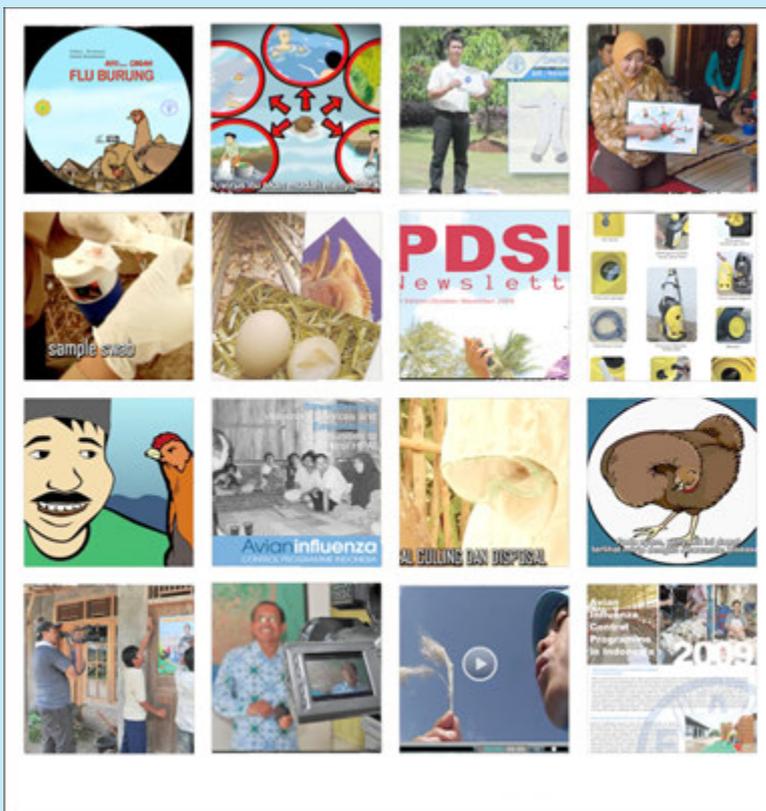
The draft National Communication Strategy of the Ministry of Agriculture for the Prevention and Control of Highly Pathogenic Avian Influenza in Indonesia 2009-2011 developed in late 2008 was reviewed and refined this year, highlighting action points in both narrative and matrix formats. The strategy is being reviewed by DAH prior to endorsement. Further editions of the PDSR Newsletter and Avian Influenza Bulletin were also produced and distributed this year, in collaboration with CMU.



Photo: FAO/Indonesia/Ridwan



Photo: FAO/Indonesia/Hutabarat



# Enhanced surveillance, control and prevention of HPAI in the commercial poultry industry

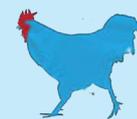


Photo: FAO/Indonesia/Aditjondro

## ■ Indonesian National Poultry Quality Improvement Programme (NPQIP)

The commercial poultry industry is a key partner in the campaign to control HPAI in Indonesia. To improve coordination and gain more broad-based support for partnership between public and private sectors, industry representatives from the integrated commercial poultry companies prepared a draft proposal for establishment of an Indonesian NPQIP.

The FAO AI Programme Indonesia, along with other technical partners, has provided technical support and facilitation for the development of the programme and has recommended that the industry call together a wider group of commercial industry stakeholders (e.g. Sector 2 and 3 operators) that would be more representative of the Indonesian poultry industry in order to incorporate their interests within the NPQIP concept. As a result of ongoing dialogue with poultry industry representatives, USDA and other international partners such as the Indonesia-Dutch Partnership (IDP) significant progress has been made in establishing a viable framework for NPQIP development. NPQIP Facilitators will be recruited by FAO in order to engage each group of industry stakeholders to develop and finalize the NPQIP proposal.

## ■ Operational Research in Indonesia for More Effective Control of Highly Pathogenic Avian Influenza (OR)

FAO and MOA collaborated with a number of organizations and stakeholders in implementing this project, with donor support from USAID and World Bank. The project was designed by the International Livestock Research Institute and assessed four experimental groups: PDSR control group, PDSR plus preventive AI vaccination, PDSR plus AI and ND vaccination, and PDSR with the ability to immediately compensate for culled birds. The targets for the vaccination were sector 3 poultry flocks of up to 5,000 birds and sector 4 poultry. 1088 Community Vaccinators were trained and equipped, and performed vaccination in their communities; 64 Coordinators of Community Vaccinators were trained and supervised cold chain and vaccination activities; and cold chain was set up in 16 districts. Four vaccination campaigns were conducted in 16 'OR' districts in West Java, Central Java and Yogyakarta. The final two vaccination campaigns were implemented in 2009. During the four campaigns, 89 - 94% of the target poultry population was vaccinated.

A workshop was held in December 2009 to present the findings of operational research carried out over the past 2 years. A final report on this work is expected early next year.

## ■ Pilot Intensified Vaccination Programme (InVak)

ECTAD Indonesia is working closely with the USAID-Deliver project to support the CMU and DGLS World Bank project to implement the first phase of InVak in ten districts on Java. This vaccination programme targets intensive native chicken producers and small-scale layer farms of up to 5,000 birds.

InVak follows on from the OR project and involves the personnel, networks and logistics set up during OR. It specifically aims to facilitate greater ownership and involvement of local governments and communities in vaccination activities. Through the activities of this programme it is anticipated that local government animal health staff will develop better relationships and gain greater access to small-scale sector 3 layer farms. It is expected that lessons learned during this pilot study will inform subsequent intensified vaccination in 2010.



Photo: FAO/Indonesia/Primanto



Photo: FAO/Indonesia/Primanto

To assist in planning the programme, a Profiling Study was conducted to obtain information on the following: detailed poultry population in participating districts; public awareness and participation level in mass vaccination activities; common vaccination practices in sector 3 poultry farms; and cold chain management and waste disposal management at farm level. Other activities conducted in support of the programme include training and refresher courses for vaccinators; cold chain management training for 30 animal health centres involved in the intensification of vaccination; and cold chain management training for district and provincial animal health officials in areas where intensification of vaccination will be conducted. In addition, cold chain management infrastructure in 30 animal health centres involved with the intensification of vaccination and at provincial level (Yogyakarta) has been improved. Regular visits have also been conducted to monitor the technical implementation of vaccination and cold chain management.

### **Biosecurity Training of Trainers (TOT)**

This TOT activity aimed to significantly and rapidly upgrade the skills and knowledge of more than 200 sector 1 and sector 2 commercial poultry industry veterinarians and technical officers in the fields of biosecurity, decontamination (cleaning and disinfection), and composting of dead poultry. The TOT enables the technical officers to train sector 3 farms associated with their company or association. The three-day training included two days in a classroom environment with the third day of practical activities in the field on a de-stocked poultry farm.

Nine TOT workshops were undertaken in 2009:

- four TOT for sector 1 and sector 2 commercial poultry companies in West Java and Surabaya;
- two TOT in South Sulawesi for commercial poultry and pharmaceutical companies, NGO employees involved in the live bird market restructuring project in Makassar, government veterinarians and PDSR officers; and
- three workshops for local government animal health officers, including Jakarta local government veterinarians; PDSR master trainers; and a group of 20 DGLS veterinarians acting as auditors of commercial poultry farms (in conjunction with the Indonesia-Dutch Partnership and USDA).

### **Improving Biosecurity in Commercial Poultry (IBCP) South Sulawesi**

The IBCP programme aims to reduce the prevalence and economic losses of HPAI, and other key poultry diseases in the South and West Sulawesi poultry industries by developing improvements in biosecurity suitable for the low-input small and medium scale commercial industry present in the area. Developed in consultation with government stakeholders and the commercial poultry industry, the programme has two key components: (1) improving hygiene and sanitation (biosecurity) within commercial enterprises, and (2) collection of good quality data to support project initiatives, and government and industry efforts to reduce the risk of disease transmission.



Photo: FAO/Indonesia/Ruben



Photo: FAO/Indonesia/Ruben



Photo: FAO/Indonesia/Ruben



Photo: Inninawa



Photo: FAO/Indonesia/Ireng



Photo: Inninawa

### » Improving hygiene and sanitation (biosecurity) within commercial enterprises

The FAO IBCP team initially delivered pilot training and biosecurity enterprise risk assessment to a group of broiler producers from Maros district, and a group of layer producers in Sidrap district. This activity was complemented by a practical Biosecurity TOT workshop which explored methods of training of adults and commenced development of a training curriculum suitable for small-scale commercial poultry farmers. Biosecurity training was delivered to farmer groups from Pare Pare city and Pinrang, Gowa and Takalar district, with an emphasis on involvement of local trainers from government livestock services and industry, to develop local training capacity, and begin to refine the training modules for use in each area and poultry production system.

In collaboration with the Australian Centre for International Agricultural Research (ACIAR) the IBCP programme funded and supported Biosecurity Advisor training for participants from government livestock services and private industry representatives. This training is part of a defined process supported by ACIAR which may lead to nationally recognised Master Trainer status. Since the training, private sector trainees have independently developed farmer training plans for the Sidrap layer producer area and the Gowa broiler producer area to be implemented in 2010.

The IBCP program will continue to develop local biosecurity training resources, including improving capacity of local trainers, and publishing a set of training modules specifically designed for the needs of South Sulawesi layer and broiler producers, using experience and materials from all training conducted to date. Training will be complementary to the concurrent development of a pilot market chain certification system through the ACIAR project 'Cost-effective biosecurity in non-industrial commercial poultry'. Development of the biosecurity training module, and farmer risk assessments, will support the development, with industry and government, of a set of minimum biosecurity standards.

The IBCP programme is also supporting the piloting of simple farm level biosecurity initiatives relevant to the South Sulawesi commercial poultry sector via an incentive scheme to support implementation of farmers' own biosecurity improvement proposals, and development of composting and layer farm demonstrations together with local farmer groups. The incentive programme for small scale broiler producers was initiated with the request, distributed through partnership broiler companies, for small grant proposals from farmers for simple biosecurity improvements. More than 80 proposals were received representing farmers working with all major partnership companies from South Sulawesi. A panel representing government, industry and academia selected ten broiler farmers, who received a small grant to improve the biosecurity of their farm. Proposals comprised exit/entry controls, fencing, and improved disinfection equipment, and were implemented on all farms from August to September 2009. A similar incentive scheme is planned in the layer producer area in the northern part of South Sulawesi during 2010.

### » Data Collection, Surveillance and Monitoring of HPAI in Commercial Poultry

A profiling study of the commercial poultry industry in six districts of South Sulawesi was carried out to gather good quality data to support project initiatives and government and industry efforts to reduce the risk of disease transmission. A desk study was conducted to collect initial industry information; the location of all commercial poultry enterprises (layers and broilers) in targeted districts was verified, and baseline information about the business structure, linkages, and basic biosecurity practices in each enterprise was gathered. Results were presented to industry stakeholders and local government partners and will be used to contribute to development of a surveillance plan for the commercial poultry sector, as well as to contribute to development of further training plans.

In collaboration with DIC Region 7 (Maros), a simple surveillance system has been developed to support project initiatives with the commercial poultry sector in southern Sulawesi and document the effectiveness of interventions. A

comprehensive matrix of options for surveillance of the commercial poultry sector was developed, and three distinct surveillance activities will be implemented by provincial Dinas and DIC teams. It is anticipated that these will improve access to the commercial industry for sample collection and disease diagnosis. A questionnaire for collection of data from commercial poultry farms experiencing disease events was developed. The form was distributed and discussed during a meeting of the South Sulawesi HPAI working group, and a plan developed for field testing of the form. Integrated disease investigation and safe, effective sample submission between DIC, Province and district is undergoing an ongoing process of development through field trials and discussions with representatives from all levels during the course of South Sulawesi HPAI working group meetings.

### ■ **Prevalence study in potential reservoir populations in West Java, Central Java, and Banten provinces**

To better understand the potential role of scavenging ducks in the spread of HPAI in Indonesia, a duck producer profiling and surveillance project is being implemented in six districts in Banten, West Java, and Central Java provinces. The purpose of the study is to encourage local government registration of duck flocks within their jurisdiction and to evaluate options and feasibility of disease control interventions. Targeted surveillance for avian influenza virus circulation in duck flocks will also be undertaken to determine the need for these interventions.

Profiling of duck producers in Central and West Java has been completed and sampling to estimate the prevalence of H5-positive duck flocks in selected areas of these two provinces has commenced. It is expected that the results of the study will assist in the development of a nationally coordinated disease control and prevention activity that specifically targets Indonesian domestic duck populations.

### ■ **Serosurveillance for Avian Influenza in Ducks in Kalimantan**

The second phase of this project conducted in three districts in South Kalimantan was undertaken from March to July 2009. The specific objectives of this phase of the project were (a) to evaluate the market chain, husbandry and flock characteristics of domestic ducks in the Amuntai region of South Kalimantan as a basis for designing an AI disease surveillance programme; (b) to develop and pilot an HPAI surveillance programme in ducks; (c) to improve understanding of HPAI epidemiology in commercial ducks in the study area and (d) to build capacity of the local government livestock services, the regional DIC and Regional Management Unit in the study area.

Project activities were implemented in two stages: (a) profiling of duck producers to obtain an updated list of duck farms with greater than 100 ducks and, (b) survey to determine the seroprevalence of H5 specific antibodies in commercial duck farms in the project area. The survey phase involved taking serological samples (50 – 60 birds per farm) and tracheal swabs (20 birds per farm) from ducks in 150 farms. A questionnaire was used to obtain data on farm practices and potential risk factors for avian influenza transmission for farms studied. Data analysis is pending and a final report is expected early next year.



Photo: FAO/Indonesia/Lawson



Photo: FAO/Indonesia



Photo: FAO/Indonesia/Madri Dewi

# Improved surveillance and control along the poultry marketing chain



## ■ Poultry Movement Study



Photo: FAO/Indonesia/Brum

This project, aimed at describing the movements of live poultry through the 12 districts/municipalities comprising the Jabodetabek area, was completed in 2009. Information on the marketing and movements of commercial poultry along the market chain from point of production to point of retail sale or consumption is needed to be able to target control efforts at the sources of HPAI virus being brought into urban areas by infected poultry.

The project was implemented in two phases. During the verification stage, a total of 720 premises including collector yards, markets, and small slaughterhouses that trade in live poultry were identified and characterized in terms of their location, throughput and type of poultry marketed. During the survey phase a total of 384 enterprises (246 collector yards and 138 markets) were visited by enumerators and data relating to poultry movements and working practices were collected.

Results confirmed that the network of premises marketing live poultry is very complex due to the vast number of enterprises involved, the different types of premises trading live (and slaughtered) poultry, and how interconnected all these premises are. Broilers were the most common class of poultry present in both collector yards and markets, with around 70% of premises selling them. Collector yards account for almost 80% of the total volume of live poultry traded in the Jabodetabek area and supply most of the live poultry they trade to markets, although they also trade directly with final consumers. Most of the transactions at markets are with final consumers, but in the sample of markets that was selected for this study a significant amount of poultry was also sold to other markets.



Photo: FAO/Indonesia/Hanum

The study found that East Jakarta is an important hub of poultry trade in Jabodetabek as it contains a high number of collectors and trades more broilers and spent layers than any other district/municipality. The vast majority of premises in the study operate daily and most are never empty of live poultry. Thus appropriate cleaning and disinfection are very difficult to implement. The study is helping to guide both the development of improved disease control interventions along the post-production market chain as well as inform the market restructuring initiative underway in DKI Jakarta.



Photo: FAO/Indonesia/Primanto

## ■ Market and collector yard surveillance programme

Phase 1 of this programme began in March 2009 with the initiation of surveillance activities in markets within the 12 districts/municipalities of the Jabodetabek region. The objectives of the market activities were to determine on a monthly basis the prevalence of H5-subtype influenza A viruses in live bird markets in the Jabodetabek area. Secondary objectives were to identify the geographic origin and bird type associated with the presence of H5 viruses in markets as well as to build capacity within the district.

Officers in the 12 districts/municipalities were trained to take market environment samples and an information reporting system was established to facilitate data flow. A random sample of live bird markets in each of the districts was visited by the officers on a monthly basis. Officers took pooled environmental swabs from five surfaces of market stalls and samples were subjected to matrix and H5 PCR testing. Data on type of birds as well as origin of birds were gathered from stall vendors where swabs were taken in order to assess risk associated with H5 virus contamination in markets. A database was developed for capturing Market Surveillance data; it was installed in LDCC Jakarta, Banten, and Bogor, and used to record the data of market surveillance activities.

Between 90 and 146 markets were sampled monthly with more than 50% of markets testing positive for Influenza A viruses in each month. Of those markets testing positive for influenza A in each month, most of these were due to subtype-H5. Within the 12 districts, markets in Bekasi had the highest percentage of positive samples.

Phase 2, the collector yards surveillance component was initiated in November. The objective was to determine the best method to be used to assess HPAI risk associated with type and geographic origin of birds entering collector yards. A study design was prepared and district officers in two districts as well as NGO sector workers were contracted and trained. Preparatory activities including identification of locations, drafting of training modules, design of sample collection forms, logbook, and sample collection kits and placement of sentinel birds are underway. Sampling for the study is scheduled to begin in January 2010 and run for one month. The results of this study are expected to provide information to help with determining the most cost-effective method for longitudinal collector yard surveillance to determine the high-risk geographic areas and types of poultry bringing virus into Jakarta.

## ■ Biosecurity and sanitation interventions in selected live bird markets in Tangerang

Market cleaning and disinfection days were initiated in Kutabumi live bird market in Tangerang district late this year. Preparatory activities included discussions with district livestock services, facility assessment and electricity upgrade at two selected live bird markets, one each from Tangerang Municipality and District, training of cleaning staff, provision of cleaning equipment including high pressure washers, and procurement of 480 durable poultry cages based on the previously finalized design. The ongoing cleaning days in Kutabumi market will be monitored and the lessons learned will be utilized to revise Standard Operating Procedures for subsequent expansion of the programme to other live bird markets next year.

## ■ Decontamination of live bird markets, wholesale yards and sites of production

A pilot project of training private sector collector yard staff in cleaning and disinfection practices in 12 live poultry collector yards in DKI, and supplying of Karcher high pressure sprayers, detergent and Virkon disinfectant commenced in 2008. This project has now expanded to include cleaning and disinfecting large transport vehicles at the five large-scale collector yards/slaughterhouses selected by the DKI Jakarta Livestock Services for slaughtering live poultry entering Jakarta.



Photo: FAO/Indonesia/Hafiz

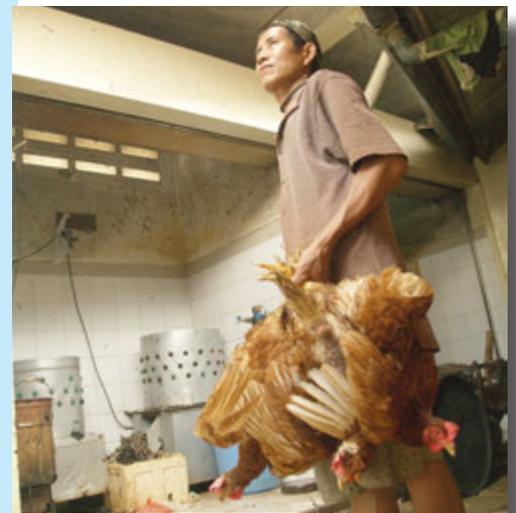


Photo: FAO/Indonesia/Hafiz



Photo: FAO/Indonesia/Ireng



Photo: FAO/Indonesia/Gozali

The recruitment of a consultant engineer to the ECTAD Indonesia team increases the team's ability to advise local governments on the development of decontamination facilities to help reduce the spread of the HPAI virus via the post-production market chain.

Progress has also been made toward engaging with farmers, brokers, and other key stakeholders involved in the transport of live poultry into Jabodetabek, as well as in selecting suitable sites for the cleaning of transport vehicles returning from the collector yard/slaughterhouses back to farms. Standard Operating Procedures used in this cleaning and disinfection project have been developed to include the use of locally available detergent, disinfectant, and cleaning equipment and are currently in use.

### ■ **DKI Jakarta poultry market restructuring**

Jakarta's inhabitants consume more than 800,000 poultry each day, delivered through a network of 216 poultry collector yards and/or 1,500 slaughterhouses spread throughout Jakarta, including both residential and commercial areas. Starting in April 2010, the rearing, slaughtering and transport of live poultry in the capital city will be banned, except at government sanctioned sites. The government proposes to facilitate the restructuring of poultry marketing by supporting the collection, slaughtering and distribution in five government-approved collection yards/slaughterhouses in Jakarta.

The Jakarta City Animal Health Services has been charged with implementing the ban. FAO has been providing ongoing technical and facilitation support to the DKI Jakarta government. This has been complemented by an assessment of public awareness of the poultry market chain, a socio-economic study on the impact of the proposed poultry market restructuring, and an assessment of the support from surrounding districts to ensure that the supply of poultry is sufficient and that the relocation of slaughterers and collectors can be made. The analysis of the downstream part of the poultry value chain has revealed that the key stakeholders will be critical in the success of restructuring of the market. Without the awareness, participation and support of the poultry trade brokers, collectors, slaughterers and market vendors, the government would have to rely on strict control methods and sanctions which would not be well received in an increasingly democratic and vocal Indonesia. Facilitation between public and private sector stakeholders, awareness and education campaigns as well as strategy review and revision on behalf of DKI Jakarta government, are ongoing.



Photo: FAO/Indonesia

A study tour was also conducted to gain an understanding of poultry market restructuring initiatives (poultry business and distribution) in Viet Nam and Hong Kong. Six representatives from the Ministry of Agriculture; DKI Jakarta administration; the Jakarta Economics Bureau; the Livestock, Marine and Agriculture Service; the Livestock and Fishery Service (East Jakarta City); a collector yard private sector representative; and ECTAD Indonesia programme personnel participated. Meetings were held with the national and local government authorities responsible for animal health and field visits were made to chicken collector yards, government-owned traditional markets, slaughterhouses and markets in both countries. A number of recommendations were formulated and presented to the Assistant Governor, DKI Jakarta for consideration.



Photo: FAO/Indonesia/Hutabarat



Photo: FAO/Indonesia/Primanto



## CONCLUSIONS

This year the FAO-supported Government of Indonesia Avian Influenza Control Programme has expanded its work to address critical control points across the spectrum of poultry-virus interactions. FAO has provided technical and policy advice to the DGLS, epidemiological analysis, donor coordination, market chain and socio-economic analyses, and through the OFFLU project has carried out studies relating to antigenic drift, appropriate vaccine development, and vaccination strategy. A major success of the programme implemented through the DGLS and CMU has been the strengthening of the field activities of the local government veterinary authorities leading to an improvement in the veterinary/farmer interface so essential for a disease control programme to be effective.

Engagement with and support to our commercial poultry industry partners was strengthened during the year through continuation of biosecurity training for farmers and technical staff in Java and Sulawesi, support for the development of the Indonesian National Poultry Quality Improvement Programme and the activities of the Improving Biosecurity in Commercial Poultry programme in South Sulawesi. Surveillance and risk reduction along the poultry marketing chain have been improved through the market and collector yard surveillance programme, cleaning and disinfection of live bird markets and wholesale collector yards, and the DKI Jakarta poultry market restructuring programme.

I look forward to FAO ECTAD Indonesia being associated with the progressive development and implementation of AI control in Indonesia in partnership with local communities, government (both central and local), private commercial industry and international stakeholders.

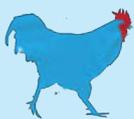
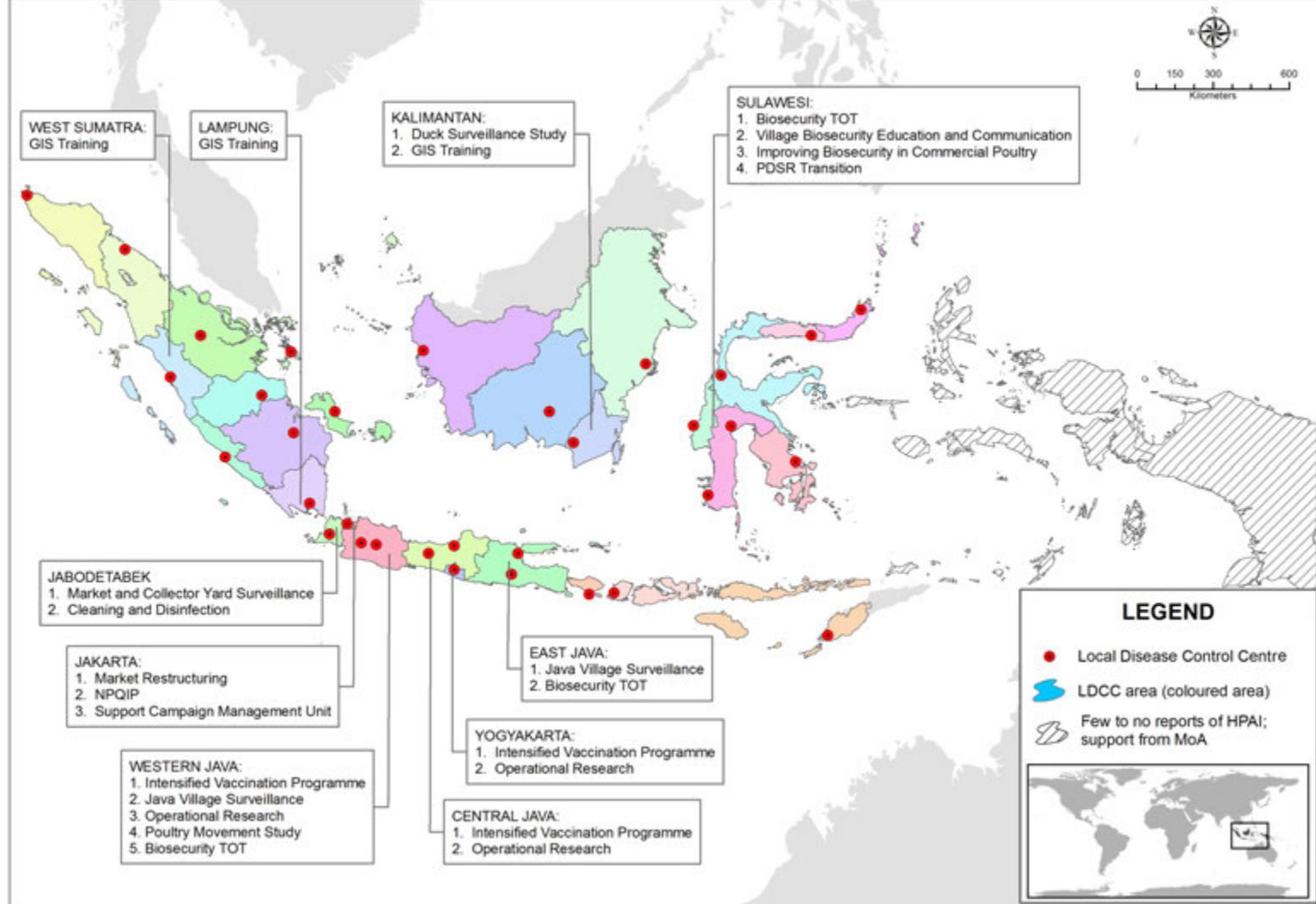
**James McGrane**  
Team Leader  
AI Control Programme  
FAO Emergency Centre for Transboundary Animal Diseases  
(ECTAD) Indonesia



Photo: FAO/Indonesia/Primanto

## ■ Abbreviations and Acronyms

AAHL	Australian Animal Health Laboratory
ACIAR	Australian Centre for International Agricultural Research
AI	Avian Influenza
CMU	Campaign Management Unit
DAH	Directorate of Animal Health
DGLS	Directorate General of Livestock Services
DIC	Disease Investigation Centre
ECTAD	Emergency Centre for Transboundary Animal Diseases
FAO	Food and Agriculture Organization of the United Nations
GIS	Geographic Information System
GOI	Government of Indonesia
GPS	Global Positioning System
HPAI	Highly pathogenic avian influenza
IBCP	Improving Biosecurity in Commercial Poultry
IDP	Indonesia Dutch Partnership project
InVak	Pilot Intensified Vaccination Programme
Jabodetabek	The Jakarta, Bogor, Depok, Tangerang, Bekasi areas of western Java
LDCC	Local Disease Control Centre
MOA	Ministry of Agriculture
NGO	Non-Governmental Organisation
NPQIP	National Poultry Quality Improvement Programme
NVS	National Veterinary Service
OIE	World Organisation for Animal Health
OFFLU	OIE-FAO Network of Expertise on Animal Influenza
OR	Operational Research in Indonesia for More Effective Control of Highly Pathogenic Avian Influenza
PDSR	Participatory disease surveillance and response
SEPRL	South East Poultry Research Laboratory, Georgia, USA
SOP	Standard Operating Procedure
TOT	Biosecurity Training of Trainers
USDA	United States Department of Agriculture
VBEC	Village Biosecurity, Education and Communication



## ACKNOWLEDGEMENTS

The FAO Avian Influenza Control Programme Indonesia works closely with the Government of Indonesia's Ministry of Agriculture, provincial and district Livestock Services; the National Committee for Avian Influenza Control and Pandemic Influenza Preparedness (KOMNAS FBPI); the United Nations country team, particularly the United Nations Children Fund, the World Health Organization, the Office for the Coordination of Humanitarian Affairs and the United Nations Development Programme; United States Department of Agriculture and non-government partners such as Development Alternatives Inc, John Snow Inc and the International Livestock Research Institute.

Collectively, donor organizations fund some 16 international and 50 national staff contracted to FAO in Jakarta and South Sulawesi. FAO staff are responsible for technical and administrative support to the HPAI Campaign Management Unit, undertaking a range of activities in support of the CMU.

In 2009 the FAO Avian Influenza Control Programme in Indonesia was funded by the United States Agency for International Development, the Australian Agency for International Development, the Japan Trust Fund, the European Commission and World Bank, with funding for specific projects from the Indonesia Dutch Partnership.



Australian Government  
AusAID



**United Nations Food and Agriculture Organization  
Avian Influenza Control Programme**

Menara Thamrin 7th Floor,  
Jl. MH Thamrin Kav 3, Jakarta 10250 Indonesia  
Ph. 62-21 314 1308  
Fax. 62-21 392 2747 or 390 0282  
Website. [www.fao.org](http://www.fao.org)

Building C, 6th Floor, Room 615  
Jl. Harsono RM, Kav. 3, Ragunan,  
Jakarta, Indonesia  
Ph. 62-21 780 3770  
Fax. 62-21 788 35008

