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Chargé de Mission, OIE Headquarters

## **Contribution of avian influenza data through OFFLU network**

Asia-Pacific Workshop on surveillance, prevention and control of  
zoonotic influenza

Paro, Bhutan, 29 - 31 August 2016





## OIE-FAO Network of Expertise on Animal Influenza



*Experts working  
to protect health and  
livelihoods through global  
cooperation*

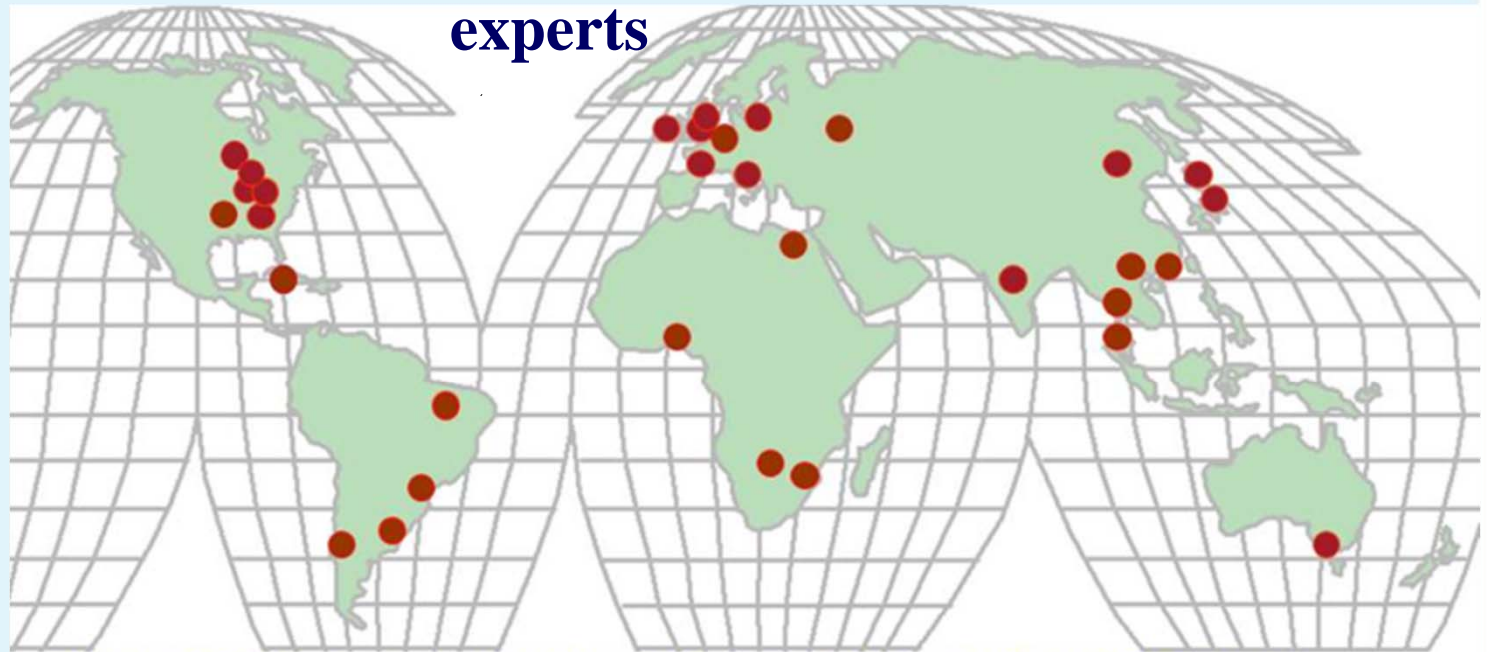
[www.offlu.net](http://www.offlu.net)



# OFFLU Network of Animal Influenza Experts

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**OIE** (World Organisation for Animal Health) and  
**FAO** (Food and Agriculture Organization of the United Nations)  
**Animal InFLUenza Network: 6 continents, 26 countries, 75 experts**



Avian (poultry and wild birds), equine and swine influenza expertise including OIE Reference Laboratories and FAO Reference Centres for Avian Influenza, OIE Reference Laboratories for Equine Influenza, OIE Collaborating Centres, OFFLU regional laboratory contacts for avian influenza, current members of OFFLU swine influenza group, and specific staff at OIE and FAO with responsibilities to OFFLU

# OFFLU's objectives

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- **Offer technical advice**, training and veterinary expertise to international organisations and Member Countries to assist in the prevention, diagnosis, surveillance and control of animal influenza
- **Exchange scientific data and biological materials** (including virus strains) within the network, to analyse such data, and to share such information with the wider scientific community
- **Highlight influenza surveillance and research needs**, promote their development and co-ordination
- **Collaborate with the WHO** on issues relating to the animal-human interface, including **pandemic preparedness** for early preparation of human vaccine

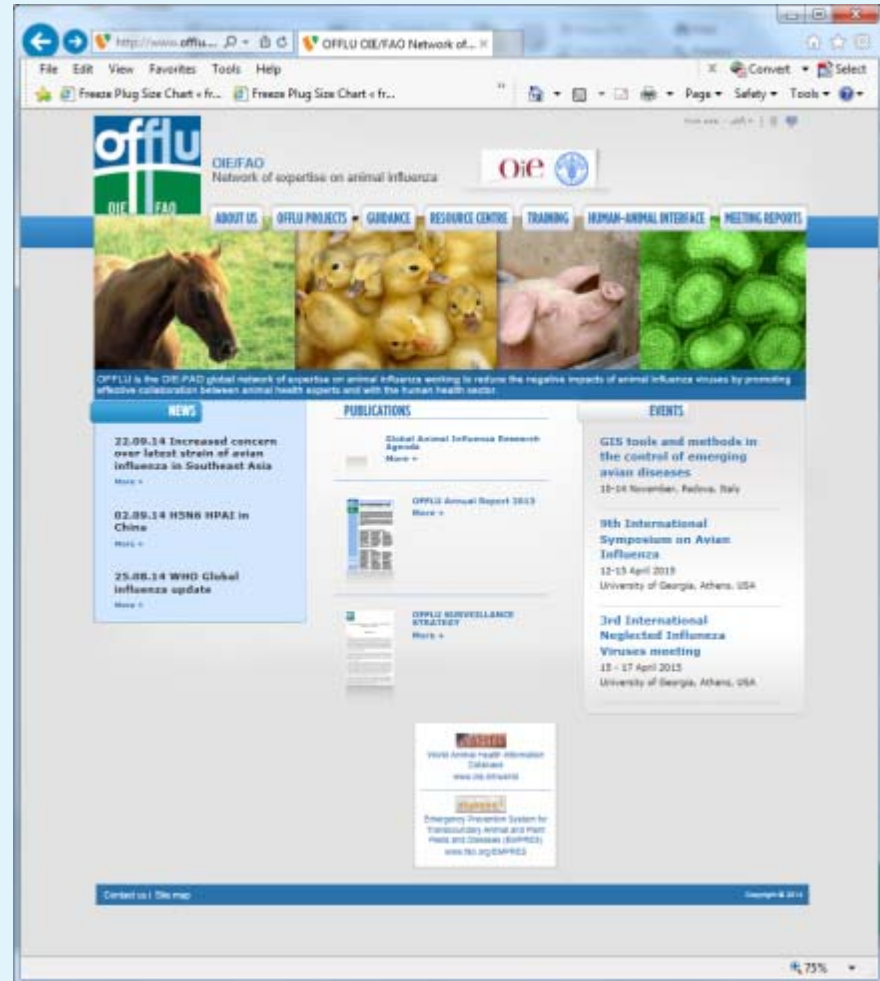
# OFFLU's vision

**The animal health community will provide early recognition and characterisation of emerging influenza viral strains in animal populations, and effective management of known infections, thereby better managing the risk to human health and promoting global food security, animal health and welfare, and other community benefits derived from domestic animals and wildlife**

# Communication Tool: <http://www.offlu.net/>

## Menu Items:

- About us
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- Human-animal Interface
- Meeting Reports
- News
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# OFFLU Technical Activities

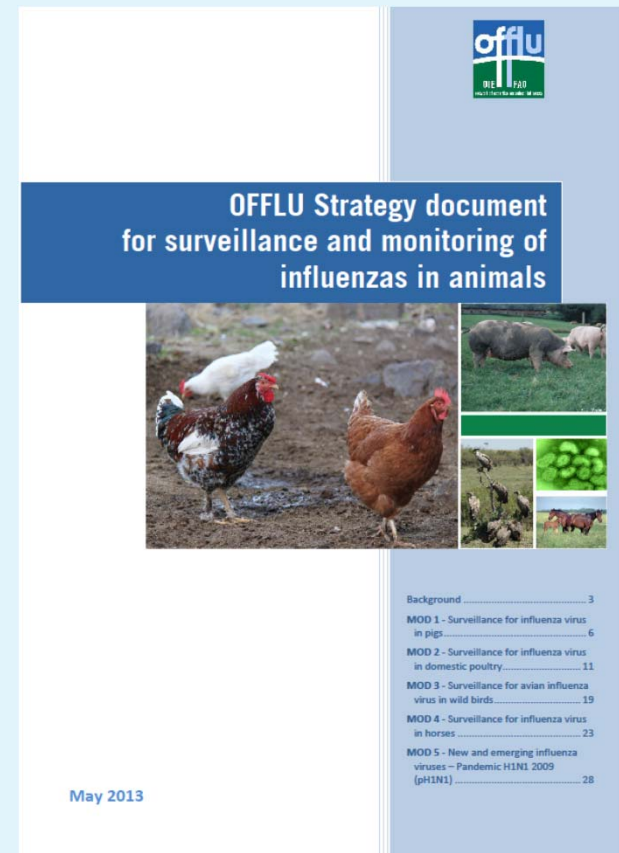
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- **Update of influenza research agenda**
- **Diagnostic activities (protocols, development of standardized references like H5 antisera, RNA standard)**
- **Biosafety (minimum biosafety requirements for handling animal influenza viruses)**
- **Annual proficiency Testing for avian influenza**
- **Epidemiology group**
- **MTAs and Code of conduct group**
- **Swine/Equine/Wild bird influenza group**
- **Training materials on influenza**
- **Advice on Vaccination**

# OFFLU T.A. Outcomes

## Applied Epidemiology Group: OFFLU Surveillance Strategy

- **Highlight**
  - Objectives and benefits for surveillance in each animal species
  - Influenza in poultry, wild birds, pigs, horses
  - Pandemic H1N1 2009 in pigs and turkeys
  - Approaches and options to surveillance
  - Options for appropriate actions
- Provide high level strategic guidance
- Coordinate and harmonize approaches to animal influenza surveillance
- Worldwide relevance



# OFFLU T.A. Outcomes

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## Proficiency Testing/Ring Trial

- **Two OFFLU global proficiency test completed.**
- **Reference labs plus 11 regional labs participated (Brazil, Colombia, Chile, South Africa, Botswana, Ethiopia, Nigeria, Vietnam, Thailand, Senegal, Malaysia)**
- **Real time PCR detection of AI strains using a panel of inactivated influenza viruses from different geographical regions**
- **Helps in consistency in diagnostic testing by labs worldwide**

# OFFLU T.A. Outcomes

## OFFLU Research Agenda

- **Comprehensive list of research priorities on avian influenza (poultry and wild birds), swine influenza and equine influenza**
- **Two editions:**
  - **2011: An OFFLU Agenda for Influenza Research Priorities in Animal Species**
  - **2014: OFFLU-STAR IDAZ Global Animal Influenza Research Agenda**
- **Research needs:**
  - **Surveillance and risk assessment**
  - **Diagnostics development**
  - **Prevention and control interventions (risk management)**
  - **Vaccine development and delivery mechanisms**
  - **Host-pathogen interaction**
  - **Socioeconomics and policy**



# OFFLU T.A. Outcomes

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## Vaccination Technical Activity

- Recommendations on Avian Influenza Vaccination, Verona, 2007
- OFFLU vaccination technical meeting, Beijing, China, 2013
- WHO VCM consultation, twice per year
- OFFLU avian influenza vaccine guidance
- Generic and specific guidance for HPAI vaccine seed strain selection
- Equine influenza vaccine strain recommendation



# OFFLU Research Projects (lead by influenza experts)

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- **Egyptian H5N1 HPAI Vaccine Efficacy Project (2008-2011)**
- **Indonesian H5N1 HPAI Vaccine Efficacy Project (2007-2010)**
- **Avian Influenza Vaccine and Vaccination – 69 countries (2010-2011)**
- **Evaluation loop mediated isothermal amplification (LAMP) for avian influenza diagnosis**
- **Collection, analysis and documentation of hemagglutinin cleavage site sequence data of HPAI viruses for regulatory definition of HPAI viruses**
- **OFFLU review of avian influenza surveillance and epidemiological projects in some European, African, and Asian countries**



# Animal-Human Interface

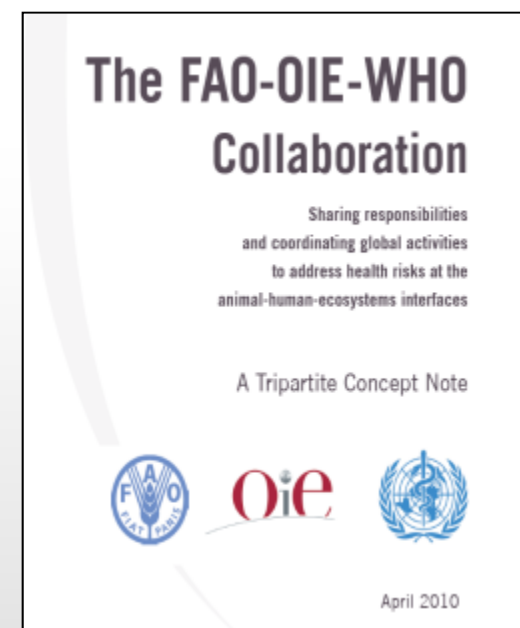
## OFFLU Collaboration with WHO



- A great success!
- On going 2-way exchange of virological and epidemiological information (both official & non-official)
- Technical collaboration at all levels
  - Pandemic H1N1 2009 first test of collaboration
  - H7N9 LPAI in China in 2013-2014
- H5N1 HPAI virus nomenclature group
- Exchange of influenza viruses under **PIP** framework
- **FLURISK** and other risk assessment initiatives
- WHO participation in OFFLU working groups and meetings

# OFFLU – WHO agreement

- Every six months OFFLU gather and analyse information on animal influenza viruses of public health concern and share that information during the WHO Vaccine Composition Meetings
- This includes:
  - Overview of epidemiologic situation for HPAI H5N1 in animals
  - Phylogenetic trees for HPAI H5N1
  - Antigenic testing of specified isolates using ferret derived antisera
  - Information for other animal influenza viruses considered to be of public health concern such as H9, H7 and other H5 subtypes
- Information assists WHO in the selection of most appropriate circulating viruses for updating seasonal human vaccines for pandemic preparedness

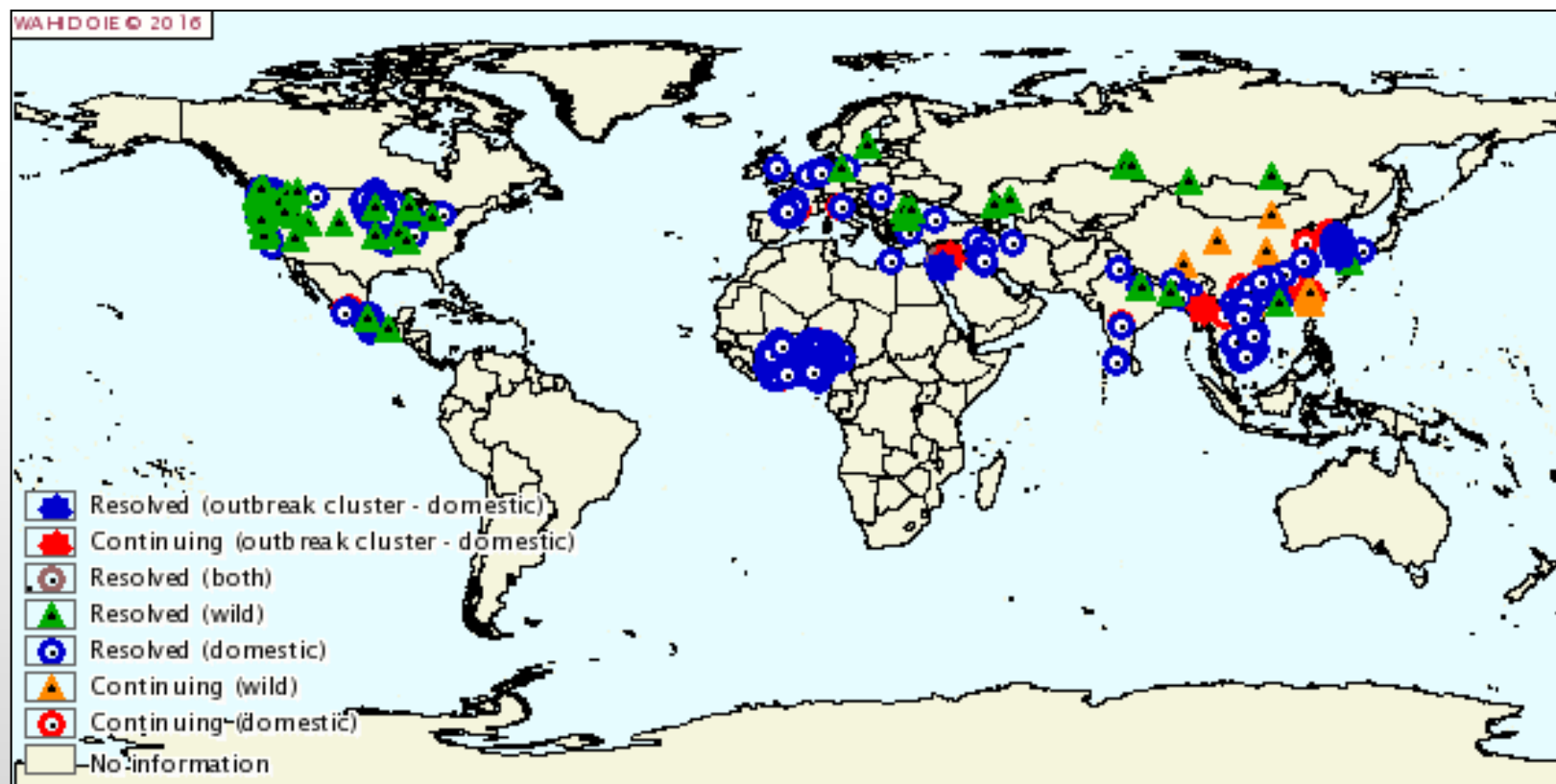


# Summary of AI sequence data contribution

| VCM meeting | H5 sequences | Countries | H7/H9 sequences | Countries |
|-------------|--------------|-----------|-----------------|-----------|
| Feb 2012    | 35           | 4         | 38 H9           | 8         |
| Sept 2012   | 135          | 9         | 17 H9           | 4         |
| Feb 2013    | 93           | 6         | 14 H9           | 3         |
| Sept 2013   | 47           | 7         | 46 H9           | 5         |
| Feb 2014    | 7            | 4         | 11 H9           | 5         |
| Sept 2014   | 40           | 6         | 6 H7/H9         | 2         |
| Feb 2015    | 46           | 10        | 11 H7/H9        | 2         |
| Sept 2015   | 91           | 19        | 4 H7/H9         | 2         |
| Feb 2016    | 59           | 14        | 27 H9           | 4         |

# HPAI outbreak situation

(Jan 2015 – August 2016)



# Importance of contribution

- The amount of genetic and antigenic data contributions submitted by the OFFLU network significantly decreased in recent years
- Data sharing valuable for zoonotic influenza risk analysis and human pandemic preparedness
- AI is a global concern which poses threat to both animal and human health
- OIE member countries adopted a resolution at 76<sup>th</sup> General Assembly (2008) for sharing material and information about AI viruses through the OFFLU network with international scientific community
- The laboratories are requested to share AI genetic sequence information on six monthly basis (biannual) with OFFLU network and support global pandemic preparedness

# Acknowledgements

- Delegates, Veterinary authorities and their laboratories in the countries that have submitted isolates, sequence data and epidemiological information
- OIE and FAO Reference Laboratories and experts who take a lead in collating the data and attend the meetings – APHA (UK), IZSVe (Italy), AAHL (Australia), NVSL (USA)
- WHO Collaborating Centres – St. Jude and CDC (USA) for supply of antigen and ferret sera in antigenic analysis
- OFFLU experts and contributors

# Thank you for your attention



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**WORLD ORGANISATION FOR ANIMAL HEALTH**

*Protecting animals, preserving our future*