



## Technical Item II:

**One Health approaches to addressing risk: Case studies and discussions focused on Avian Influenza with the objective of implementing effective/efficient surveillance and data sharing across sectors including wildlife and the environment.**

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World  
Organisation  
for Animal  
Health  
Founded as OIE

Organisation  
mondiale  
de la santé  
animale  
Fondée en tant qu'OIE

Organización  
Mundial  
de Sanidad  
Animal  
Fundada como OIE



The question is not **IF**,  
but **WHEN**, the next  
influenza pandemic  
will occur.





# Technical Item II:

*“One Health approaches to addressing risk: Case studies and discussions focused on Avian Influenza with the objective of implementing effective/efficient surveillance and data sharing across sectors including wildlife and the environment”*

Selected by the Regional Commission

Indicates the importance the Region placed on addressing the risk of Avian Influenza through One Health approach.

The discussions during the Animal Health Forum on High Pathogenicity Avian Influenza at the 90th WOAHA General Session

Avian influenza is a One Health problem and must be tackled through a holistic ecosystems health approach.

The dynamics of the disease require work and dedication from WOAHA, its Members and all stakeholders going forward.

Trust, transparency, and collaboration will be critical to address this disease threat and the challenges it brings.

The continuing global epidemic of HPAI revealed gaps in surveillance data and associated inequities in surveillance capacity in different parts of the world which need to be addressed.



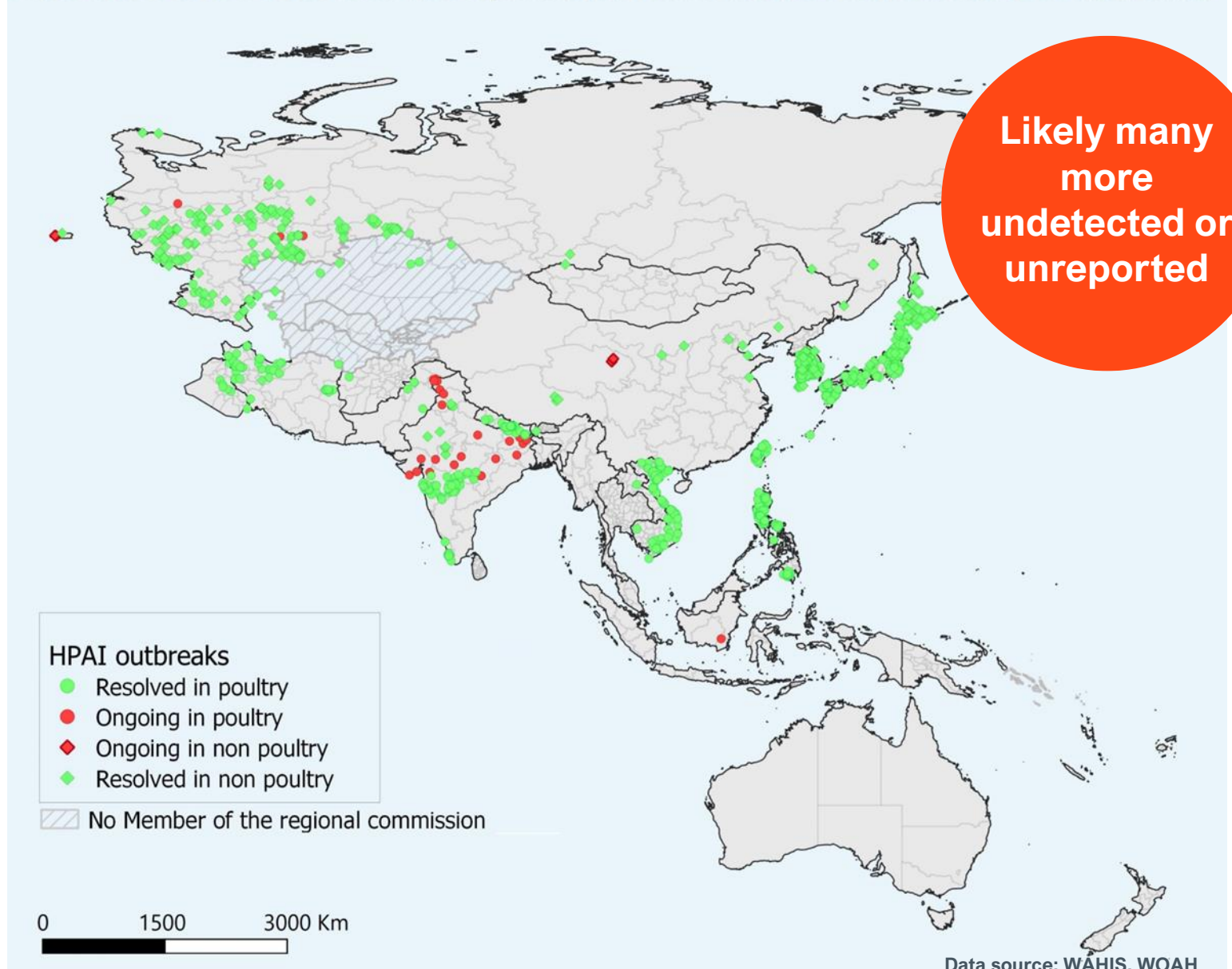


# Current Situation of Avian Influenza in the Asia-Pacific Region

## Poultry/Avian Outbreaks

- In 2021-2023, widespread outbreaks of highly pathogenic avian influenza (HPAI) H5N1 clade 2.3.4.4b and related viruses have impacted poultry, wild birds, and other animals globally.
  - Some of the mass mortalities in wild birds in the region were in endangered species.
  - Both the geographic distribution and level of impact of these outbreaks is unprecedented.
- In Asia-Pacific Members, major H5N1 outbreaks resulting in mass culling of poultry have occurred between 2020 and 2023 in China, Indonesia, Japan, South Korea, Malaysia, Vietnam, and others.
- Additional sporadic outbreaks caused by other HPAI viruses like H5N2, H5N6, and H5N8 have affected the region as well

### Distribution of new HPAI outbreaks reported from Asia and the Pacific between 2021 and 2023

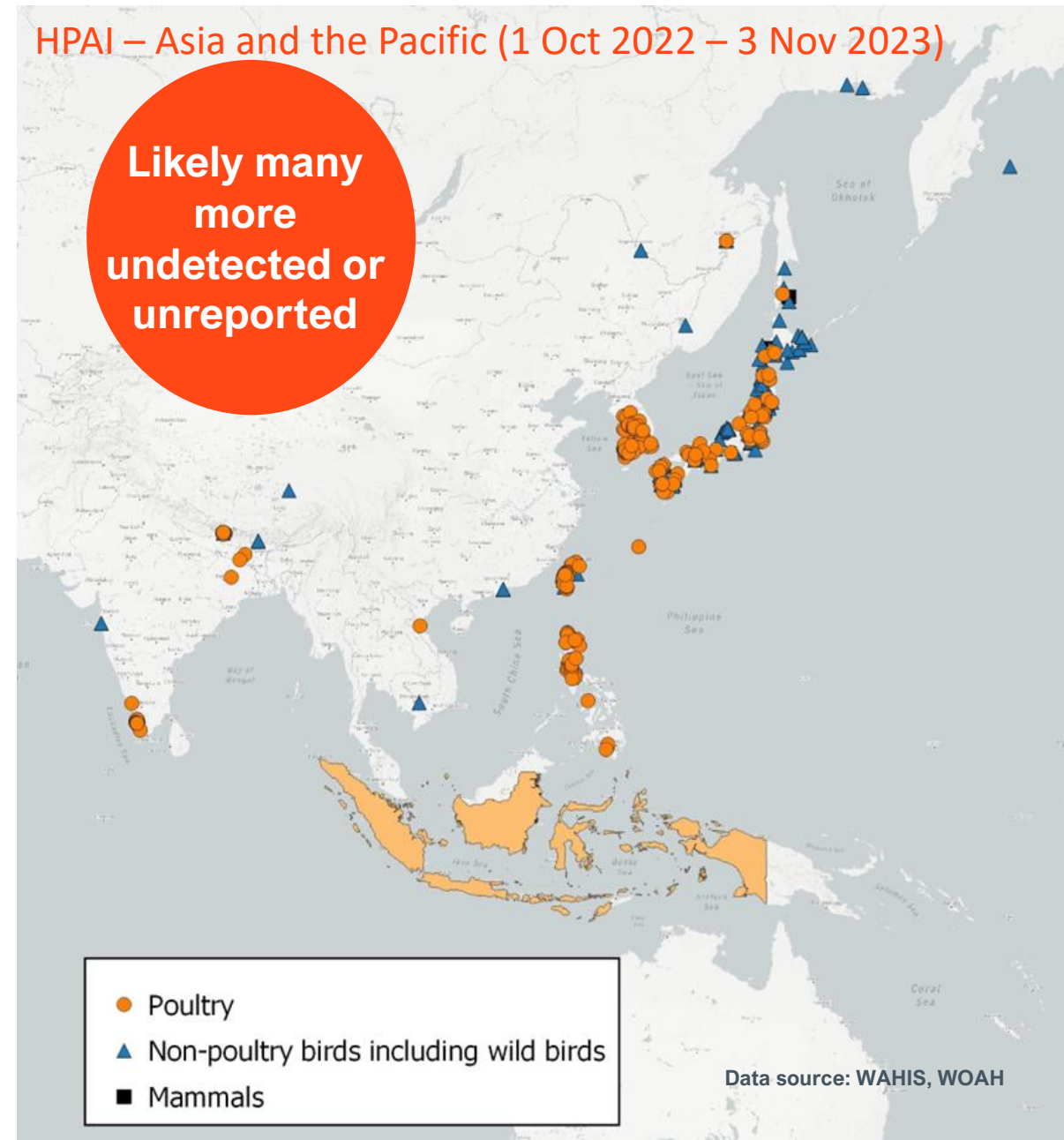


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*\*Countries in orange reported a stable HPAI situation & cases without geocoordinates*

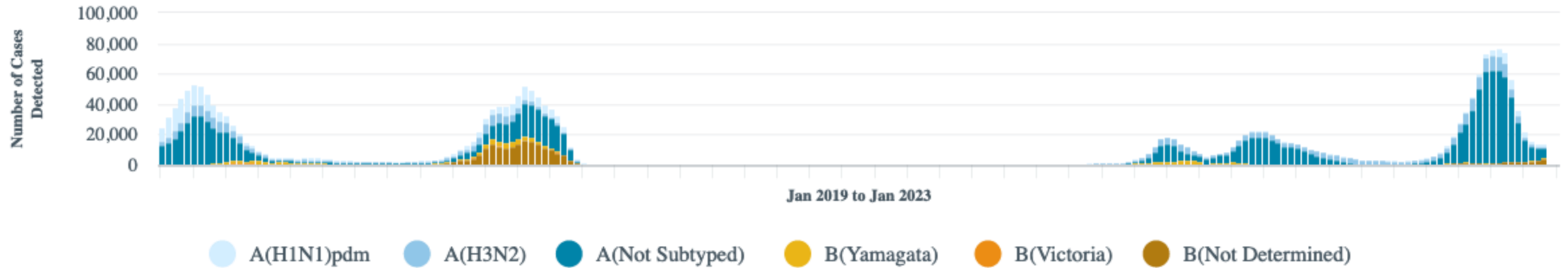
## HPAI – Asia and the Pacific (1 Oct 2022 – 3 Nov 2023)



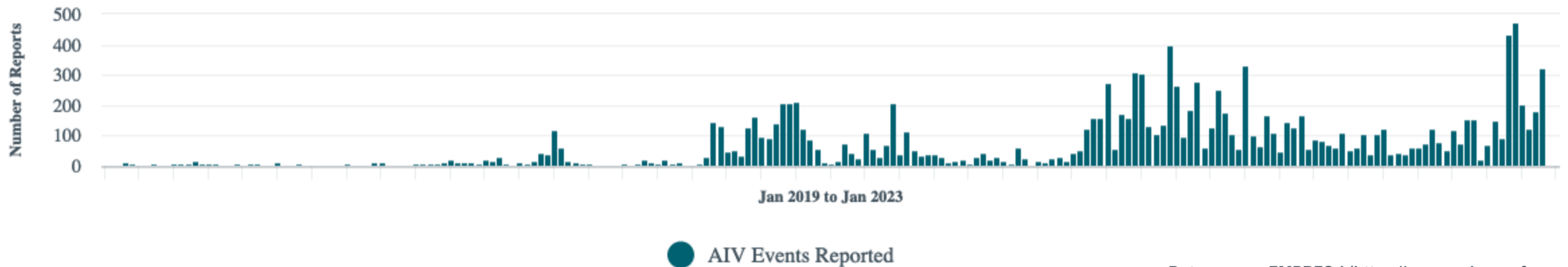




## Poultry/Avian Outbreaks have been increasing, even during COVID-19

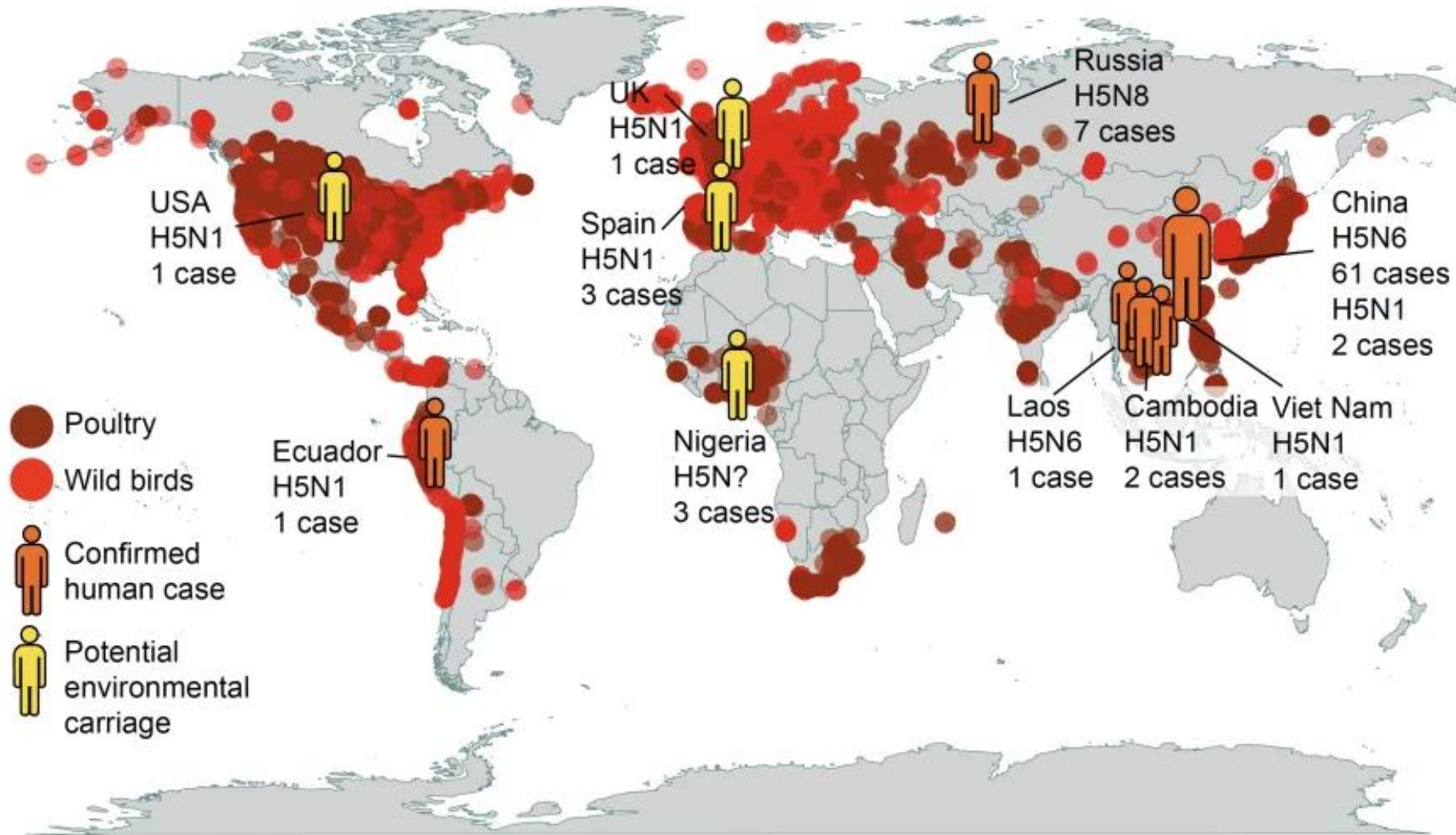


Data source: FluNet ( [www.who.int/flunet](http://www.who.int/flunet) ), WHO GISRS



Data source: EMPRES-i ( <https://empres-i.apps.fao.org/> ), FAO

# A/H5Nx SINCE OCT 2020 TO MID-2023



## Human Infections

- Avian influenza viruses cause sporadic zoonotic human infections, with A(H5N1) and A(H7N9) subtypes associated with severe disease and high mortality rates.
- From 2003 to 2023, 480 human cases with 324 deaths (CFR 68%) from H5N1 avian influenza were reported across Asia-Pacific Members, predominantly in China, Indonesia, Cambodia, and Vietnam.
- Sustained human-to-human transmission has not been detected
- Other zoonotic subtypes like H5N6, H9N2, and H10N8 have also caused sporadic human cases in Asia-Pacific countries in recent years.





## Economic Impacts

- HPAI outbreaks can result in major economic damages for affected Members in Asia-Pacific.
- Estimates from past outbreaks indicate substantial losses in poultry production and associated sectors. In addition to production impacts, bans on poultry sales and consumption changes during outbreaks, as well as negative stigma impacting everything down to tourism
- Precise cumulative economic losses across Asia-Pacific are unclear due to limited data.



## Infections in Mammals

- Since 2022, influenza A(H5N1) clade 2.3.4.4b has caused outbreaks in multiple mammalian species across the world
- Over 26 mammalian species have tested positive for or seroconverted to H5N1 clade 2.3.4.4b viruses.
- In Asia-Pacific, a few sporadic infections have been detected in wild mammals.
- Spillover beyond birds raises concerns over potential viral adaptation and evolution in mammals that could increase zoonotic risk.
- Continued surveillance is critical to monitor this evolving situation.



# Current Situation of Avian Influenza Preparedness and Prevention in the Asia-Pacific Region





## Surveillance Systems

### Passive

Most Asia-Pacific Members conduct some sort of passive surveillance for HPAI focused on reporting and investigation of significant poultry and wild bird mortality events.

### Diagnostics

Diagnostic capacity for avian influenza subtyping also varies greatly between Members can be limited.

### Active

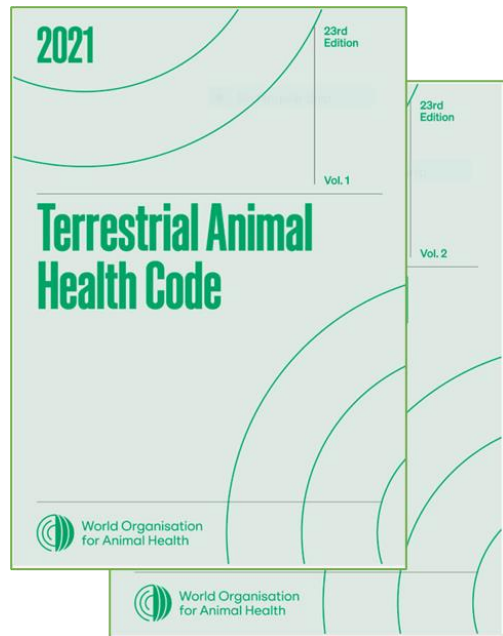
Proactive surveillance through routine sampling of live bird markets, commercial flocks, and wild bird populations can be limited.

### Reporting

Reporting of HPAI outbreaks to WOAHA is generally timely once they are identified, some delays continue to occur

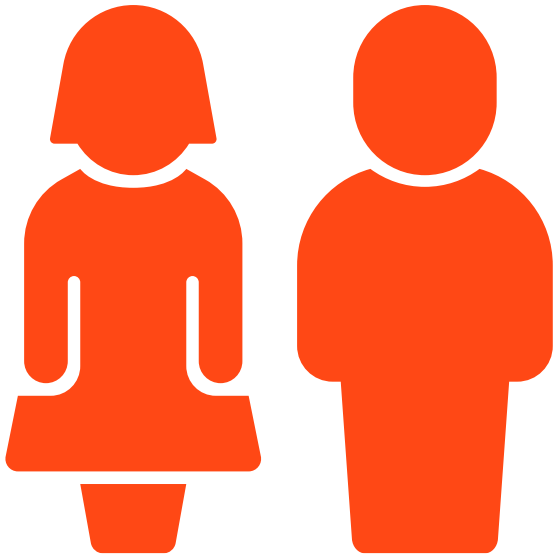


## Chapter 1.3: Terrestrial Animal Health Code



- Infection with HPAI virus in poultry, wild birds, and non-poultry domestic birds needs to be notified to WOAHA
- LPAI viruses that have proven natural transmission to humans with severe consequences or those causing an expected increase in virulence in poultry are also notifiable
- LPAI viruses in wild birds can be reported voluntarily as non-WOAH listed diseases in wildlife

## Human Surveillance



- Cases detected mainly through respiratory infection monitoring programs when they are unsubtypeable as seasonal strains
- Human infection with avian influenza is notifiable to the World Health Organization under the International Health Regulations (2005)





## Outbreak Response

### Avian



Asia-Pacific Members typically implement stamping out measures in poultry in response to HPAI outbreaks, along with movement restrictions and epidemiological tracing

Significant variation appears to exist between Members in deployment of these measures and timeliness

### Human

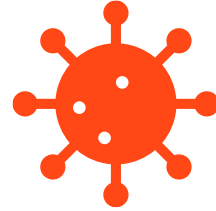


Antiviral drugs for human cases are available, but extent of use is unknown and is limited by the need for early administration

Most Members issue warnings on avoiding contact with sick/dead birds during outbreaks, but enhanced risk communication channels and messages tailored to diverse communities may improve compliance

## Prevention

Limited biosafety and biosecurity measures along poultry production and marketing chains enables amplification and spread of avian influenza viruses in Asia-Pacific Members.



### Hygienic Practices in Markets

Promoting daily cleaning and disinfection in markets, restricting overnight poultry storage, periodically closing markets for cleaning, banning slaughter on site, and limiting consumer contact with live birds through enhanced shop layouts



### Compartmentalization

High-biosecurity poultry production units can continue operating during an outbreak – helps to preserve continuity for key elements of production systems like breeder flocks while stamping out proceeds in affected zones



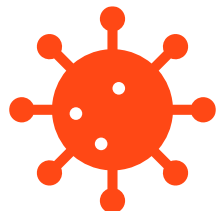
### Poultry Trade Networks

Limiting informal poultry trade networks, frequent cross-border poultry movement, and presence of free-ranging backyard poultry flocks



### Personal Protective Equipment

Critical for poultry workers, and veterinarians conducting surveillance and outbreak response in affected zones



### Biosecurity on Poultry Farms

separation from wild birds, all-in-all-out production systems, and restricting visitors

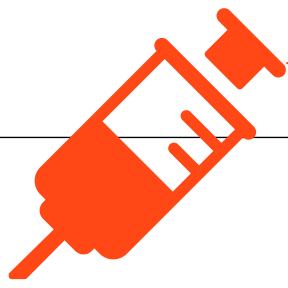


### Social and Economic Changes

Raising awareness, promoting behavior change, developing biosecurity certification schemes, and strengthening regulations could improve compliance and reduce spillover risks



# Avian Vaccination



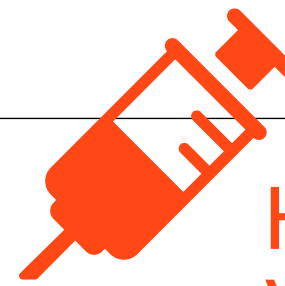
- Several Asia-Pacific Members have implemented vaccination of poultry as part of avian influenza virus (AIV) control efforts
- Vaccination should be implemented within a clearly defined vaccination strategy that outlines objectives, modalities of implementation, monitoring of vaccine coverage and effectiveness, surveillance in vaccinated flocks, and exit strategy.
- Optimizing vaccine efficacy requires matching vaccine strains as closely as possible to circulating field strains
- Vaccine delivery methods must account for variability in production practices, flock sizes, and housing types
- Rigorous monitoring of vaccine coverage and post-vaccination surveillance are critical for assessing protection levels and adjusting approaches accordingly



OFFLU AVIAN INFLUENZA  
MATCHING (OFFLU-AIM) REPORT

23 October 2023





# Human Vaccination

- Novel human avian influenza vaccines warrant further assessment and development to improve immunogenicity and cross-protection, especially in high-risk groups
- OFFLU provides for every biannual WHO influenza vaccine composition meetings a summary of epidemiological, virological and antigenic data for the previous six months on the circulating zoonotic animal influenza viruses, including H5, H7 and H9 avian influenza events and H1 and H3 swine influenza events.



## Genetic and antigenic characteristics of zoonotic influenza development of candidate vaccine viruses for pandemic preparedness

February 2023

The development of influenza candidate vaccine viruses (CVVs), coordinated by WHO, is a key component of the overall global strategy for influenza pandemic preparedness.

Selection and development of CVVs are the first steps towards timely vaccine production and recommendation for initiating manufacture. National authorities may consider the use of CVVs for pilot lot vaccine production, clinical trials and other pandemic preparedness purposes. An assessment of public health risk and need.

Zoonotic influenza viruses continue to be identified and evolve both genetically and antigenically, creating the need for additional CVVs for pandemic preparedness purposes. Changes in the genetic and antigenic characteristics of these viruses relative to existing CVVs and their potential risks to public health may create a need to develop new CVVs.

This document summarizes the genetic and antigenic characteristics of recent zoonotic influenza viruses related to pandemic preparedness that are relevant to CVV updates. Institutions interested in providing CVVs should contact WHO at [girs-who@who.int](mailto:girs-who@who.int) or the institutions listed in annual reports on the WHO website<sup>2</sup>.

### Influenza A(H5)

Since their emergence in 1997, highly pathogenic avian influenza (HPAI) A/goose/Guangdong/1/96 haemagglutinin (HA) lineage have become enzootic in some wild birds and continue to cause outbreaks in poultry and sporadic human infections across the world. These viruses have diversified genetically and antigenically, leading to the need for updated CVVs. HA gene segments have paired with a variety of neuraminidase (NA) subtypes (N1, N2, N3, N5, N6, N7, N8, N9). This summary provides updates on the characterization of A/goose/Guangdong/1/96 lineage viruses and their potential for pandemic preparedness.



# Current Situation of One Health for Avian Influenza Preparedness and Prevention in the Asia-Pacific Region





**Avian influenza in the early 2000s was a catalyst for promoting One Health collaboration in the Asia-Pacific region, highlighting the need for close coordination between animal health and public health sectors.**

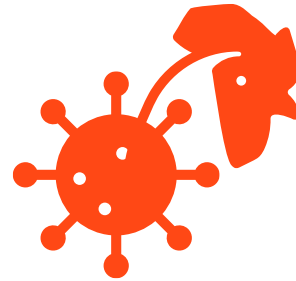


## Existing One Health Activities and Success



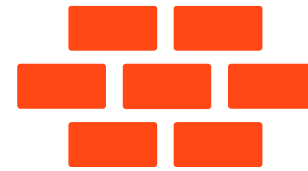
### Outbreak Response

Many Asia-Pacific Members have implemented protocols for joint outbreak response to investigate outbreaks of avian influenza in poultry and wild birds, and occasional spillovers into humans.



### Surveillance

Some Members have started limited proactive with human/environmental components. Some Members also have wildlife surveillance.



### Joint Workshops and Tools

Joint efforts by WHO, FAO and WOAHA have promoted One Health nationally and regionally



### Networks and Frameworks

Many countries have developed or are developing frameworks for work between the human-animal-environmental sectors, even outside of avian influenza.



## Examples of Existing Regional (and Global) Networks and Frameworks

- **FAO/WOAH Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs)**
  - Launched in 2004
  - Have facilitated regional alliances and expert networks for addressing avian influenza and other zoonoses
- **WOAH/FAO Network of Expertise on Animal Influenza (OFFLU)**
  - OFFLU promotes effective collaboration between animal health experts and the human health sector under the One Health approach to strengthen the data available for analysis and contributes to the process for updating influenza vaccine selection.
  - Members are encouraged to share influenza viruses with OFFLU in collaboration with WHO Global Influenza Surveillance and Response System (GISRS)





# How Can We Enhance One Health for Avian Influenza Preparedness and Prevention in the Asia-Pacific Region







## What is still missing?

(Many ongoing)

- Systematic implementation
- Coordination and legal frameworks
- Integrated information systems
- Comprehensive surveillance across wildlife, domestic animals, humans, and environment
- Improved diagnostic capacity and rapid reporting



## What can we do about it?

(Some suggestions)

- Integrated collection, analysis, and sharing of data across sectors
- Active surveillance at the human-animal-environmental interface
- Concrete mechanisms for coordination, control, prevention, and response across sectors
- Establish clear metrics and evaluation
- Finalize and implement legal frameworks
- Ensure adequate, equitable resourcing
- Increase awareness and encourage champions among senior officials

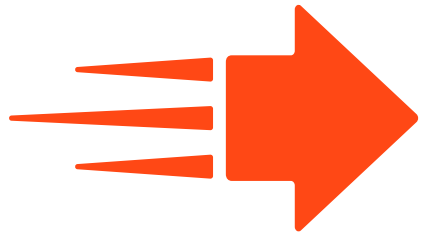


# Moving Further: Possible Future Pathways for One Health for Avian Influenza Preparedness and Prevention



# Environmental Samples present a viable option to improve One Health surveillance for avian influenza

The ability to use environmental samples for in-field diagnostic surveillance and discovery would not only increase surveillance capacity, but also contribute to our understanding of new or emerging pathogens at high-risk interfaces



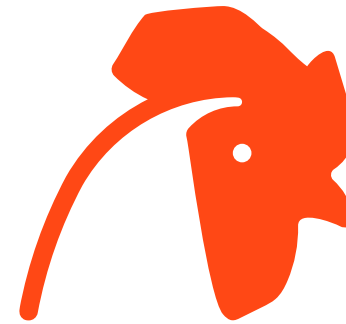
Speed



Comprehensiveness



Biosafety

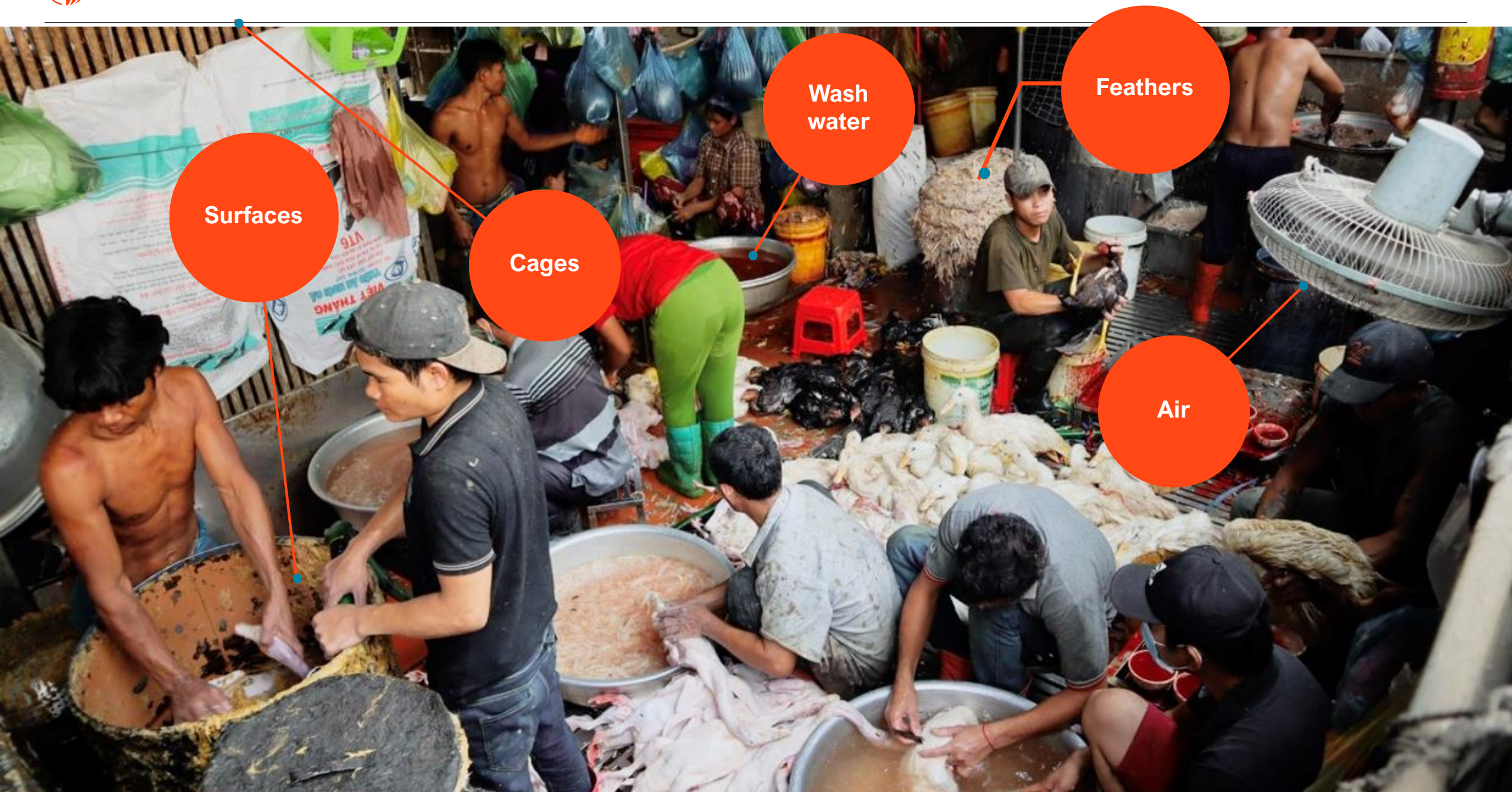


Animal Welfare



Cost





Surfaces

Cages

Wash water

Feathers

Air





## Summary and Conclusions



- Avian influenza continues to cause widespread, serious outbreaks in poultry and wild birds globally, with sporadic human infections, highlighting zoonotic risks
- Surveillance, timely detection, coordinated investigation, rapid reporting, and on-farm/market biosecurity measures are needed
- Rapid data sharing and integrated analysis promote joint decision making
- Additional priorities include equitable resource allocation, open information sharing, science-based policies for biosafety/biosecurity, high-level championship...and a lot of trust in each other
- One Health for avian influenza requires integrated approaches across sectors
- Innovation, community engagement, and cross-disciplinary collaboration is critical for sustained One Health success



**...and its only going to get worse unless we do something about it**



# Thank you

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