



Updates on the recent incursion of Avian Influenza in Poultry in Bhutan

Basant Sharma

Animal Health Specialist

National Centre for Animal Health

Département of Livestock, MOAL, Thimphu

BHUTAN

29.08.2023

Qingdao, P. R. China



World Organisation
for Animal Health
Founded as OIE



Presentation Outline

1. Member Profile(country poultry population etc)
2. Past AI outbreak
3. Response and Control approach to disease incursion
4. Challenges and possible solutions
5. Future Plans
6. Acknowledgement





Member's profile (1)

1. Poultry susceptible populations

-9,75, 152 Poultry population

(Source: NSB 2022 -www.nsb.gov.bt)

2. Avian Influenza

-Revamped and regularly updated Plan document against Avian Influenza in the country (since 2009 till 2020-around five updates)

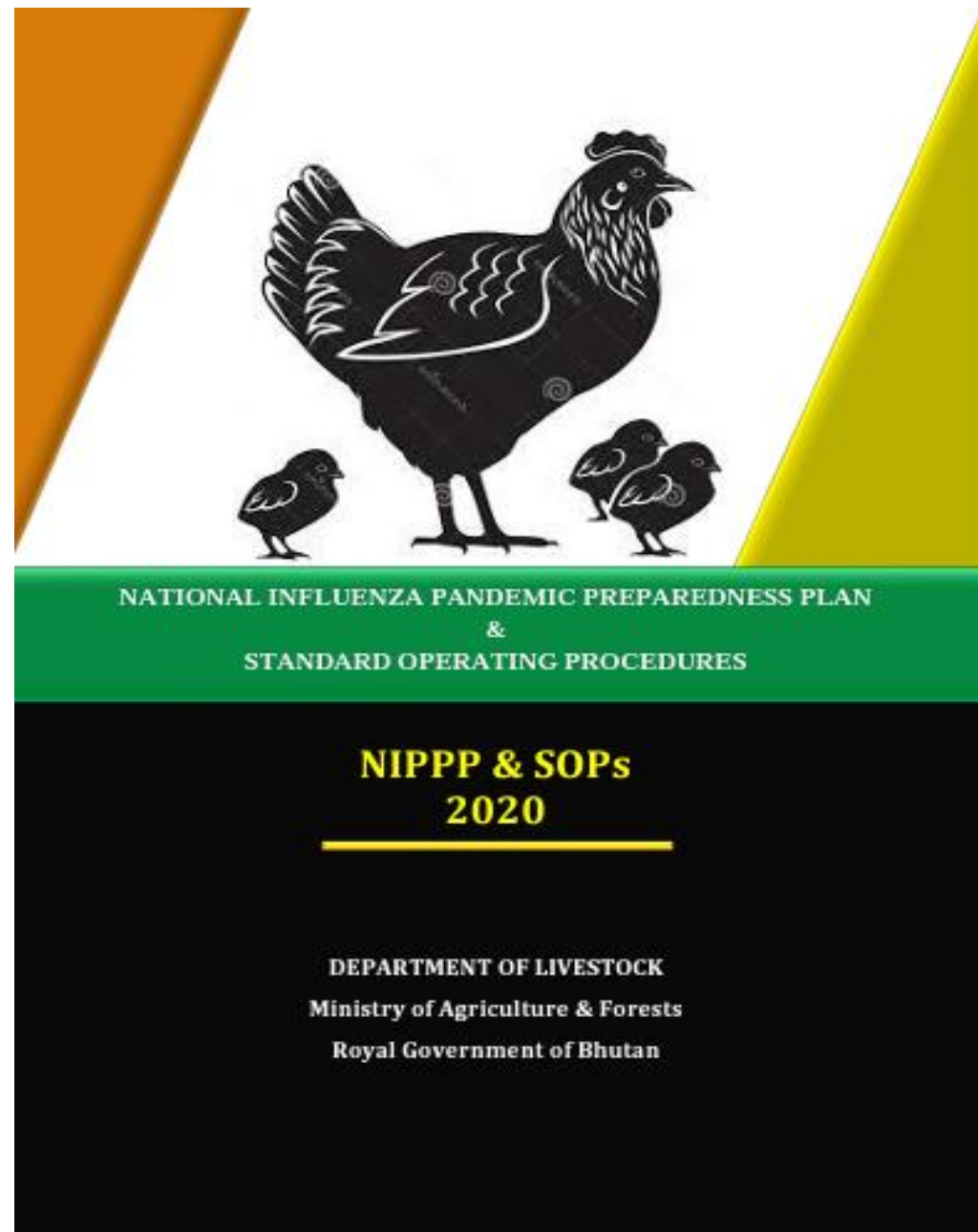
-Recent updated one -[National Influenza Pandemic Preparedness Plan and Standard Operating Procedures \(NIPPP&SOPs 2020\)](#)

-Source: www.ncah.gov.bt

3. Disease prevention and control system for other Poultry Diseases

-No disease prevention and control plan documents but follow the [Standard vaccination Schedule for Poultry](#)

-Disease outbreak investigation and response similar model to Avian Infuenza with similar Turn Around Time (TAT)





Member's profile (2)

Risk for Avian Influenza introduction to Bhutan (reference to 14th Bird Flu Outbreak outbreak)

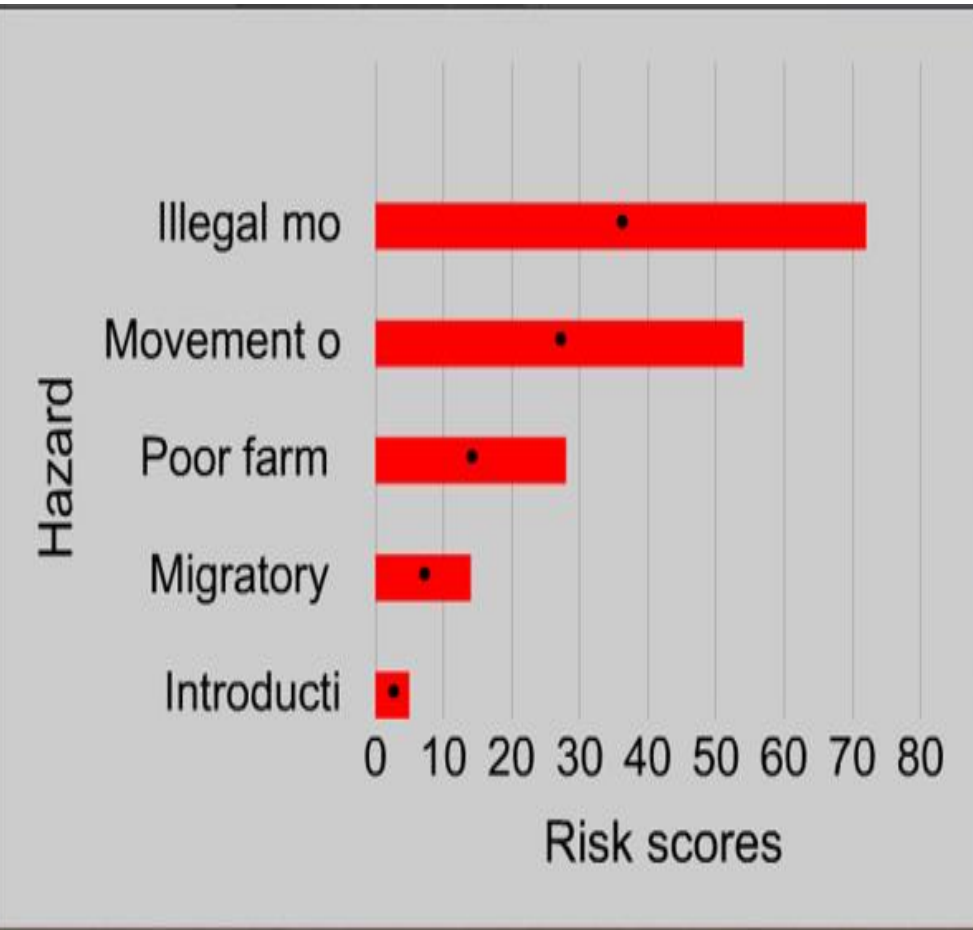
Source of outbreak
Spillover infection from wild birds



Potential risk factors for incursion of HPAI H5N1

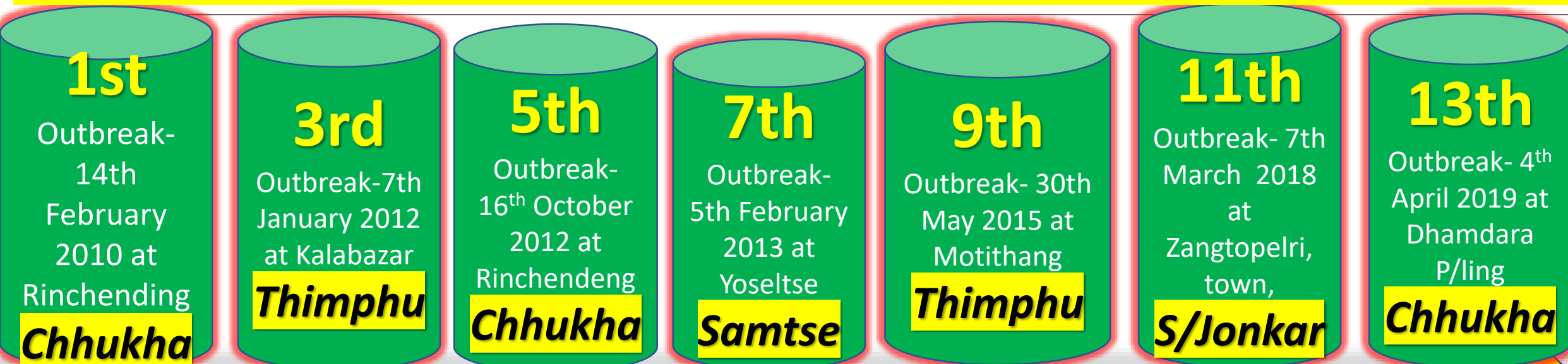
- Movement of contaminants
- Flying birds across border
- Illegal entry of poultry and its products
- Underreported cases (sporadic to major outbreaks)
- Poor farm biosecurity (backyard and commercial farms)

1. Illegal movement of chicken from live bird market across border
2. Movement of contaminants through people and vehicle
3. Poor Farm Bio-security
4. Migratory wild birds
5. Introduction of live birds

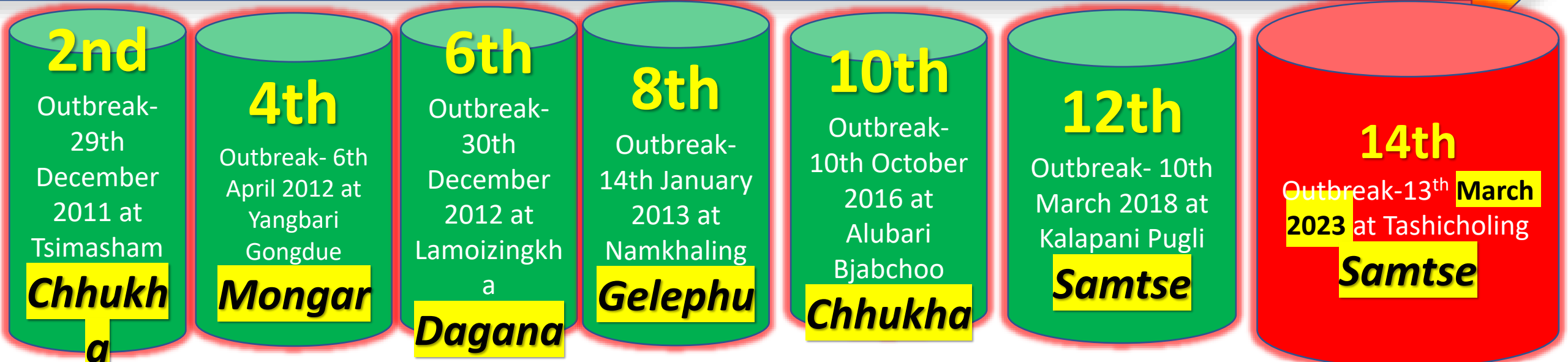


Factors: 1) Illegal movement of chicken from live bird market (across border) 2) Movement of contaminants (people/vehicle) 3) Poor farm bio-security 4) Migratory birds 5) Introduction of birds

Disease situation of Avian Influenza in Poultry in Bhutan (2010-2023)



Chronology of Fourteen Bird Flu outbreaks in Bhutan (2010 to 2023)

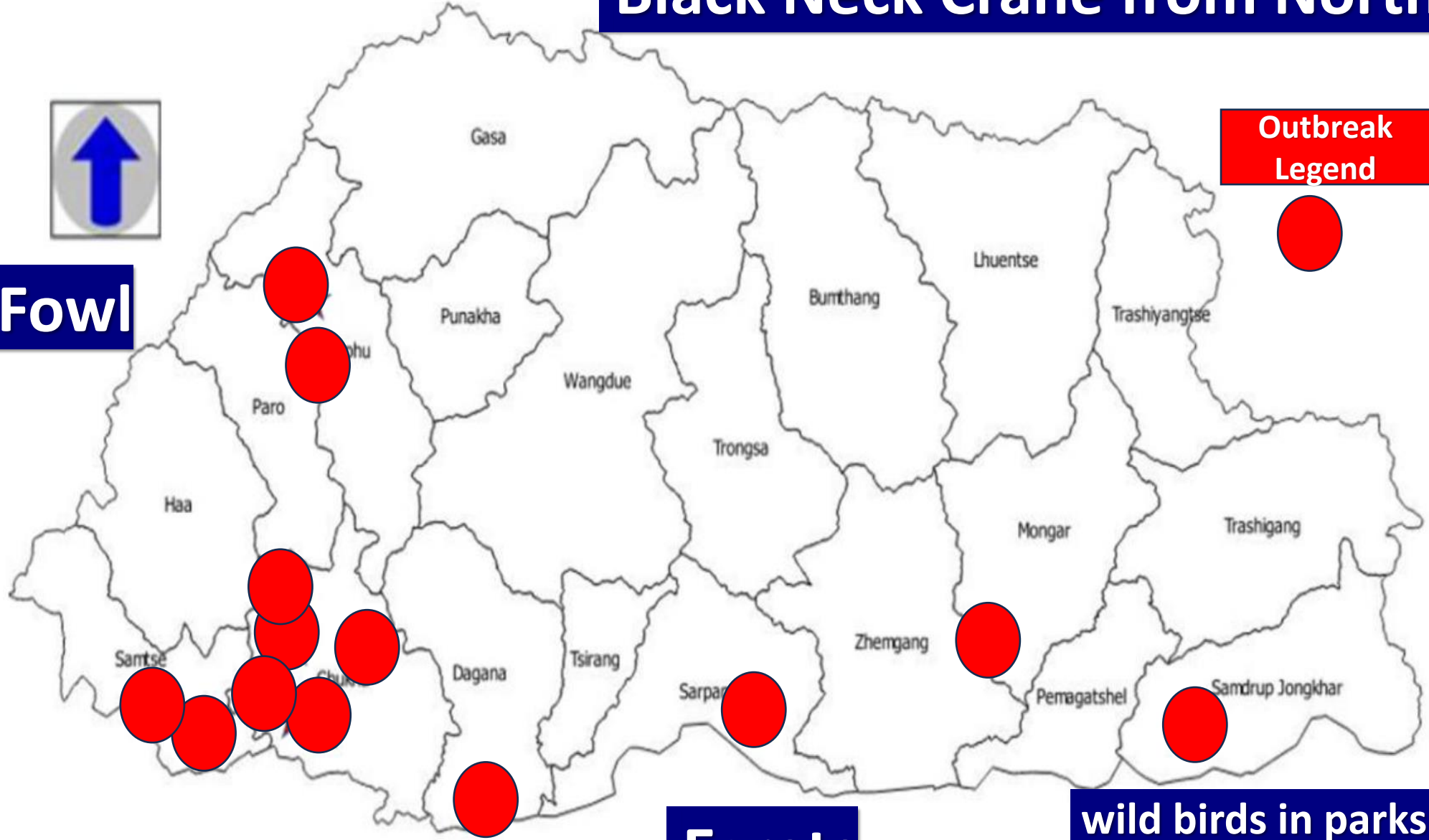




Black Neck Crane from North



Water Fowl



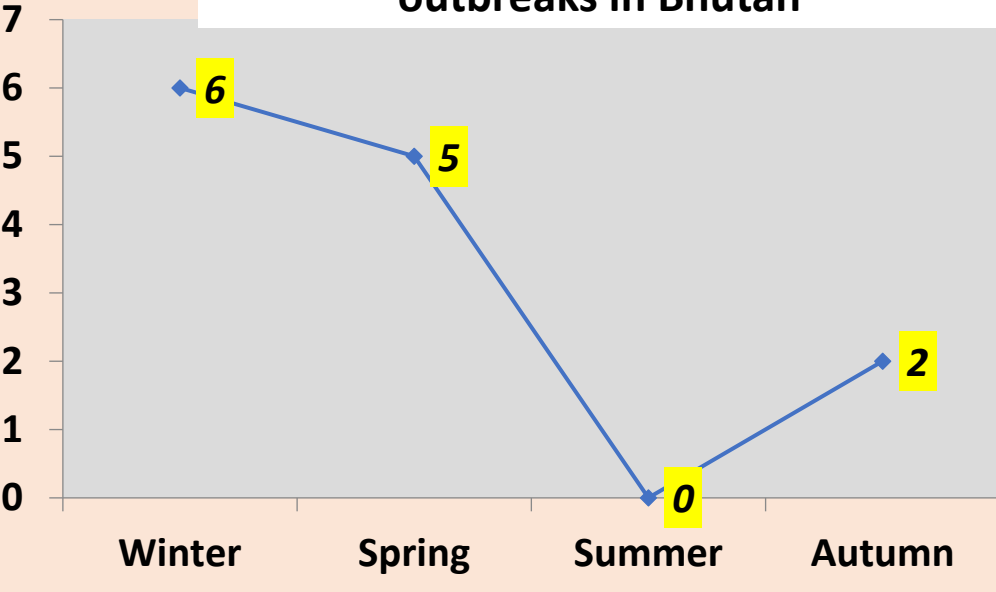
Outbreak Legend

Egrets

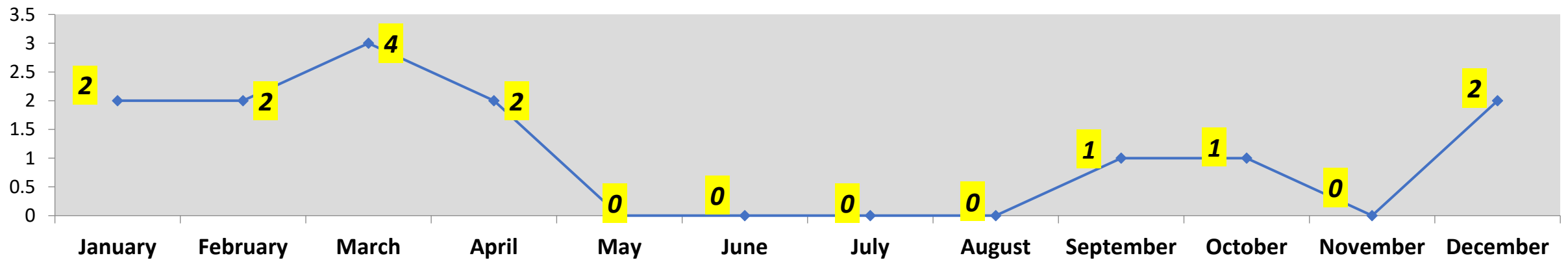
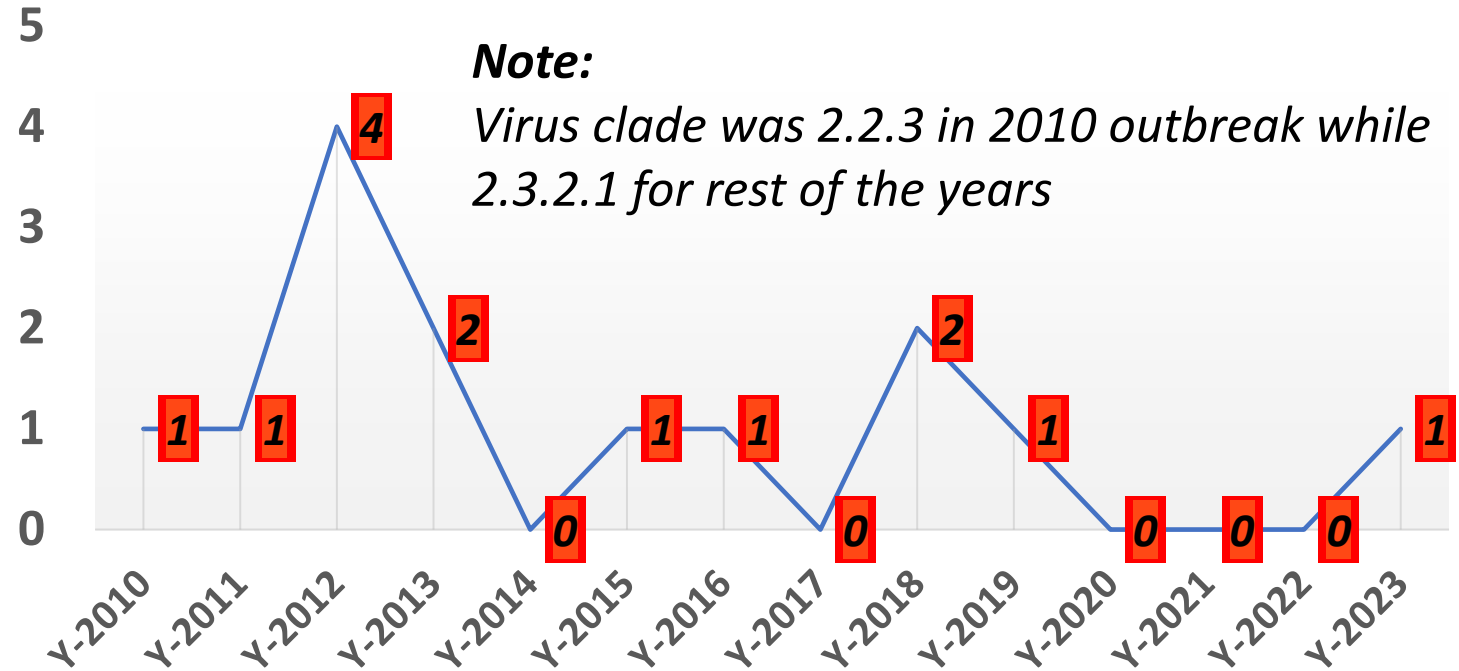
wild birds in parks and sanctuaries



Seasonal distribution of H5N1 (Bird Flu) outbreaks in Bhutan

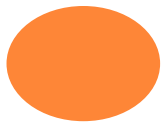
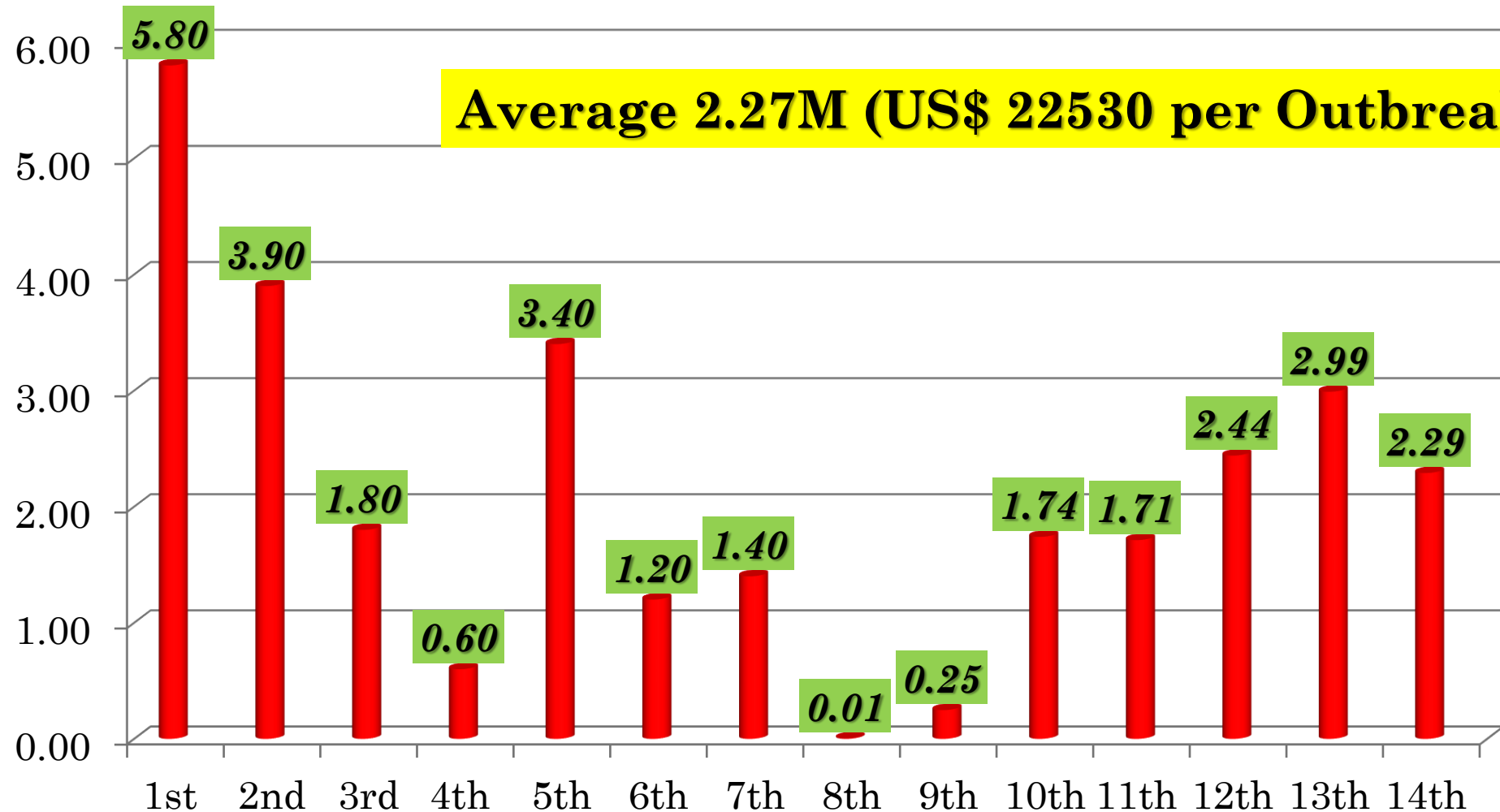


Yearly Frequency of Avian Influenza outbreak in Bhutan (2010 to 2023)



BIRD FLU CONTAINMENT EXPENDITURE AT IOC LEVEL FOR 14 BIRD FLU OUTBREAKS IN BHUTAN (2010-2023)

Total Expenditure (Ngultrum in Million)



Response to disease incursion

Surveillance System

- **Targeted surveillance** in order towns, migratory routes of water birds and Migratory birds (Black Neck Crane) and egrets mainly in **southern districts with more Semi- and Commercial poultry farms and border to neighboring Countries**
- **Risk or peak seasons for likely outbreaks are during November to March when it is cold.**
- **Joint surveillance for other diseases done along with Avian Influenza.**
- **Random collection of fresh droppings from wild birds from protected wild life sanctuaries and parks.**



Vaccination

- No vaccination in Poultry



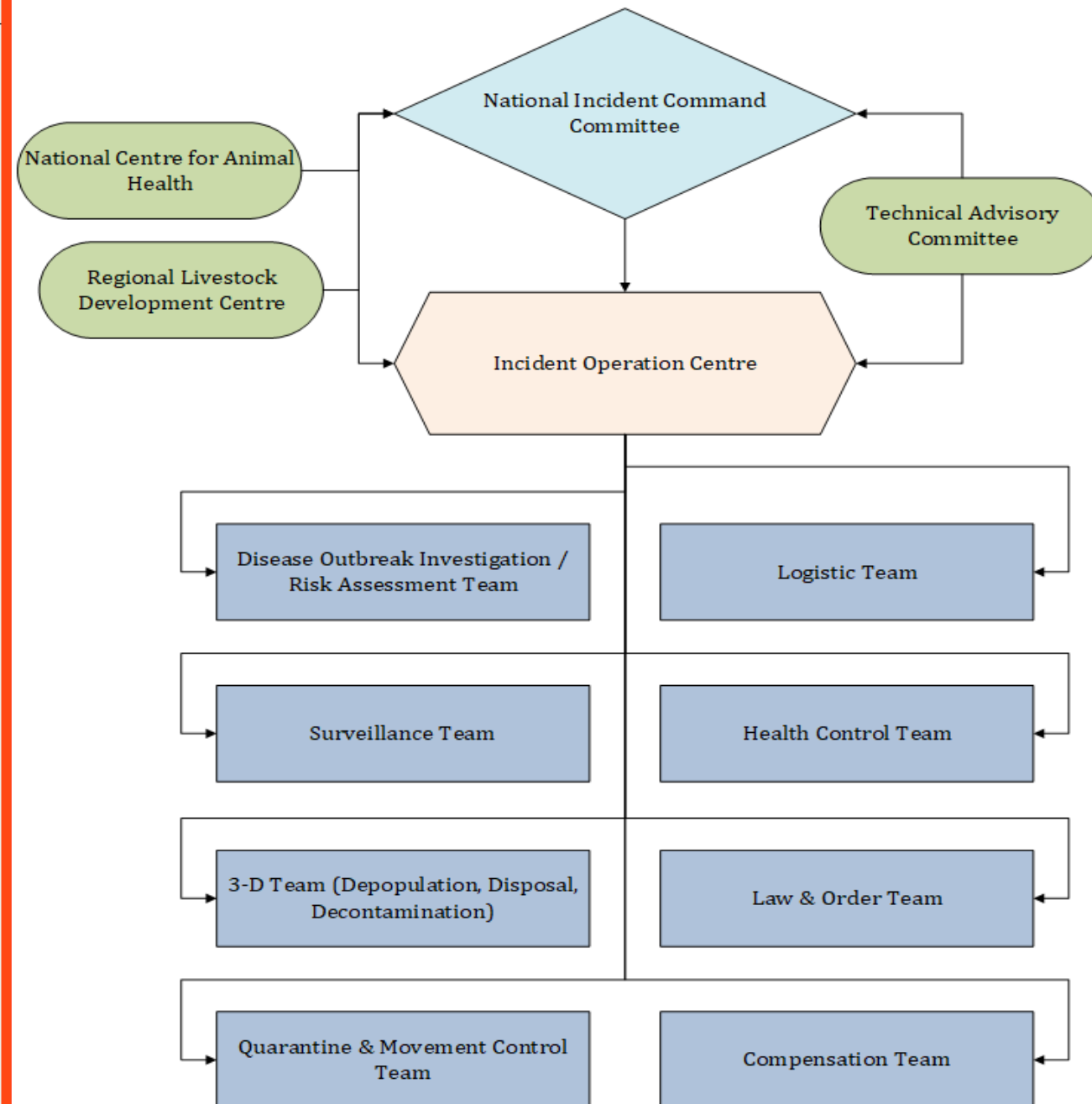
Cattle Egret (*Bubulcus ibis*)

Response and Control of Avian Influenza

Response and control done based on the **National Influenza Pandemic Preparedness Plan and Standard Operating Procedures (NIPPP&SOPs 2020)**

Events	Target	Responsibility
Poultry deaths reported by farmers to LEC/DVH/RLDC	Sample should reach NCAH within 24 hours	LEC/DVH/RLDC/SVL
Investigation and sample referral to NCAH	Within 48 hours, NCAH should confirm the disease	NCAH
Laboratory confirmation and information to field	Convene NICC within 24 hours of laboratory confirmation	NCAH/DoL
NICC meeting	IOC activation within 6 hrs of NICC meeting	NICC
IOC activation	3-D operation within 24 hrs of IOC activation	IOC
3-D operation and vehicle disinfection	NICC deactivated within 24 hrs of IOC deactivation	NICC/IOC
21 days after the last case, IOC is deactivated		

Incident Command Structure & Rapid Response Teams



Containment Activities

- 1. Disease investigation and confirmation of disease through laboratory support*
- 2. Activation of NICC (National Incident Command Committee) chaired by Secretary of Ministry of Agriculture and Livestock, Department of Livestock*
- 3. Activation of field response unit (Incident Operation Centre-IOC team led by Incident Commander with different response teams*
- 4. 3D (Depopulation, Decontamination and Disposal)*
- 5. Movement Control of birds and products including live birds, chicken and eggs.*
- 6. Vehicle disinfection for vehicles exiting the outbreak areas.*
- 7. Additional activities*



Retrospective Investigation findings of 14th Bird Flu outbreak on March 2023

- ❑ Spotted Red Jungle fowl & Pea fowl mortality on 3rd March 2023
- ❑ First mortality of backyard poultry birds from 6th March 2023
- ❑ As of 12th March – 40 birds died (sudden death) –Index & neighbor
- ❑ No influenza like illness in locals (human) as per inventory for information
- ❑ Spotted dead jungle fowls and Oriental pied hornbill



World Organisation
for Animal Health
Founded as OIE





འབྲུག་གི་འཕུལ་ལྷན་ཁང་གི་འགན་འཁུར་པ།

SECRETARY

MoAL/SEC-7/2022-2023/668

March 14, 2023

Executive order

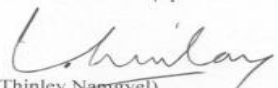
As per the technical recommendation of the Department of Livestock and the Bhutan Food and Drug Authority (BFDA) and following the confirmation of Highly Pathogenic Avian Influenza H5N1 (HPAI H5N1) at Singaygang village, Tashicholing geog under Samtse Dzongkhag on March 13, 2023, the National Incident Command Committee (NICC) activated for the containment of HPAI H5N1 hereby authorizes the establishment of the Incident Operation Center (IOC) at RNR-EC Tashicholing, Samtse for effective containment of the Highly Pathogenic Avian Influenza H5N1 outbreak.

Dr. Chendu Dorji, RNR-EC Phuentholing and Mr. Aiay Dewan Rai, BFDA Tashicholing are hereby appointed as the Incident Operation Center (IOC) members respectively.

IOC activation order

The IOC is instructed to undertake immediate disease containment measures in coordination with relevant stakeholders as per the National Influenza Pandemic Preparedness Plan and Standard Operating Procedures 2020.

Issued for strict compliance.


(Thinley Namgyel)
Chair, National Incident Command Committee



NATIONAL INFLUENZA PANDEMIC PREPAREDNESS PLAN & STANDARD OPERATING PROCEDURES

NIPPP & SOPs 2020



3D Operation (Decontamination, Depopulation and Disposal)



Depopulation in Action







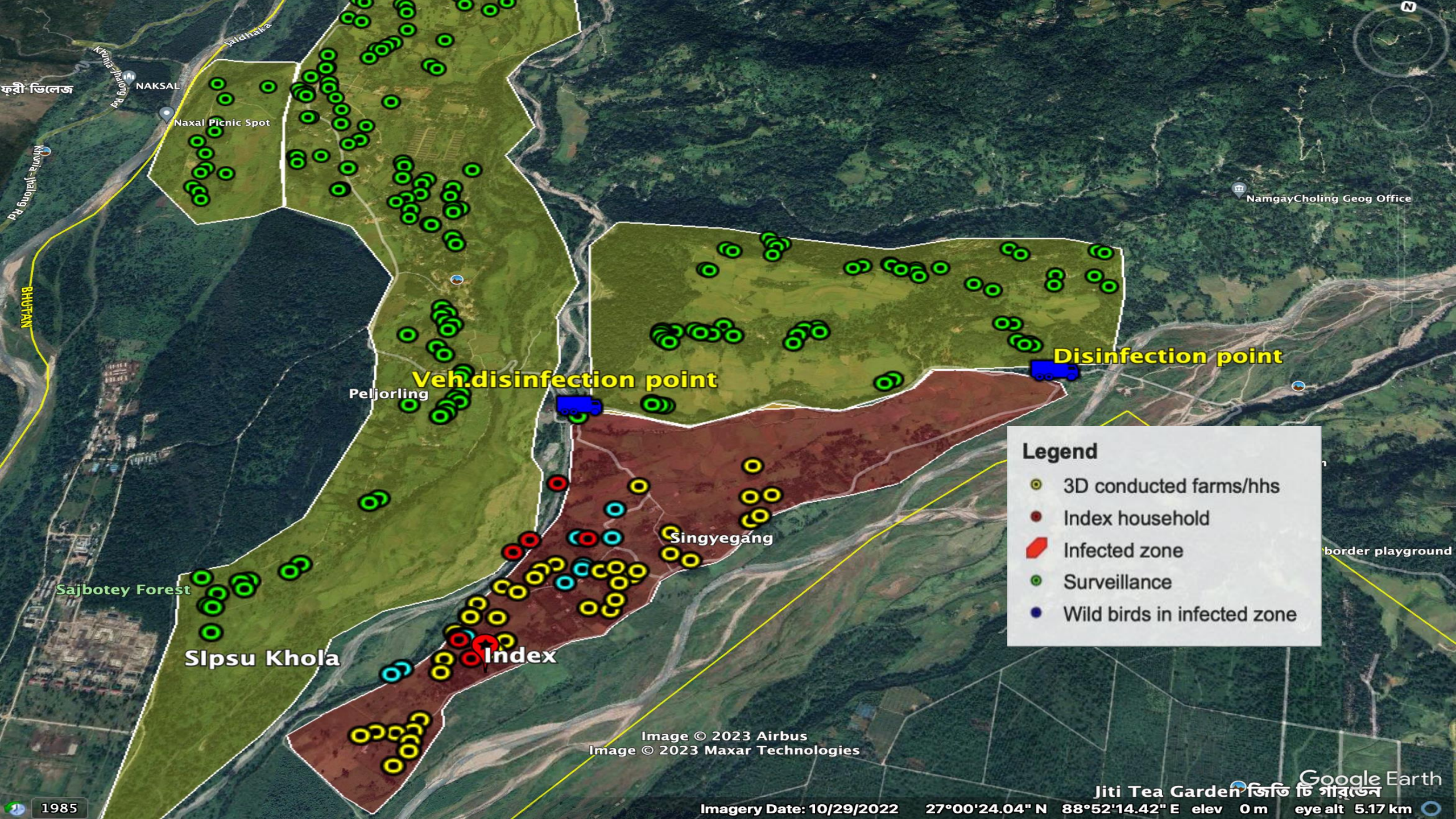
3D teams



DECONTAMINATION



World Organisation
for Animal Health
Founded as OIE



ফরী ভিলেজ

Khuvra-Jhalong Rd

NAKSAL

Naxal Picnic Spot

BHUTAN

NamgayCholing Geog Office

Peljorling

Veh. disinfection point

Disinfection point

Legend

- 3D conducted farms/hhs
- Index household
- Infected zone
- Surveillance
- Wild birds in infected zone

Sajbotey Forest

Slpsu Khola

Singyegang

Index

Image © 2023 Airbus
Image © 2023 Maxar Technologies

border playground

Jiti Tea Garden জিতি চি গার্ডেন

Google Earth

1985

Imagery Date: 10/29/2022 27°00'24.04" N 88°52'14.42" E elev 0 m eye alt 5.17 km





Movement Control Team





Surveillance



Health Control Team



བྱ་རྒྱུ་ལོ་རྒྱུ་ལྷོ་བུ་མཁའ་ལོ་ལོ་ལོ་
(མང་མ་ལོ་ལོ་ལོ་)
**BIRD FLU CARCASS DISPOSAL PIT
(ENTRY PROHIBITED)**
PIT NO.2
DATE OF DUMPING : 21.03.2018



བྱ་རྒྱུ་ལོ་རྒྱུ་ལྷོ་བུ་མཁའ་ལོ་ལོ་
(མང་མ་ལོ་ལོ་ལོ་)
**BIRD FLU CARCASS DISPOSAL PIT
(ENTRY PROHIBITED)**
PIT NO.5
DATE OF DUMPING : 26.04.2018

བྱ་རྒྱུ་ལོ་རྒྱུ་ལྷོ་བུ་མཁའ་ལོ་ལོ་
(མང་མ་ལོ་ལོ་ལོ་)
**BIRD FLU CARCASS DISPOSAL PIT
(ENTRY PROHIBITED)**
PIT NO.3
DATE OF DUMPING : 28.03.2018

བྱ་རྒྱུ་ལོ་རྒྱུ་ལྷོ་བུ་མཁའ་ལོ་ལོ་
(མང་མ་ལོ་ལོ་ལོ་)
**BIRD FLU CARCASS DISPOSAL PIT
(ENTRY PROHIBITED)**
PIT NO.2
DATE OF DUMPING : 21.03.2018





Use *epicollet5* Apps for data collection, compilation and Analysis



DO

DISEASE OUTBREAK INVESTIGATI...

Collect information and keep update

Role: **CREATOR**

Created: 28 Mar 2023

active listed public

DETAILS

VIEW



WB

WILD BIRDS INVENTORY

To collect wild birds species details available in the outbreak areas

Role: **CREATOR**

Created: 17 Mar 2023

active listed public

DETAILS

VIEW



VD

VEHICLE DISINFECTION POINT

to record vehicle movement

Role: **CREATOR**

Created: 17 Mar 2023

active listed public

DETAILS

VIEW



H3

HPAI 3D

Depopulation, Disposal and Decontamination

Role: **CREATOR**

Created: 14 Mar 2023

active hidden public

DETAILS

VIEW



IF

INVENTORY FOR 3D OPERATION

Depopulation, Disposal and



WB

WILD BIRDS HPAI SURVEILLANCE

Active vigilance and activities related to



HS

HPAI SURVEILLANCE SAMTSE

Active vigilance and activities related to



PD

POULTRY DISEASE SURVEILLANCE

Active vigilance and activities related to



Laboratory Capacity

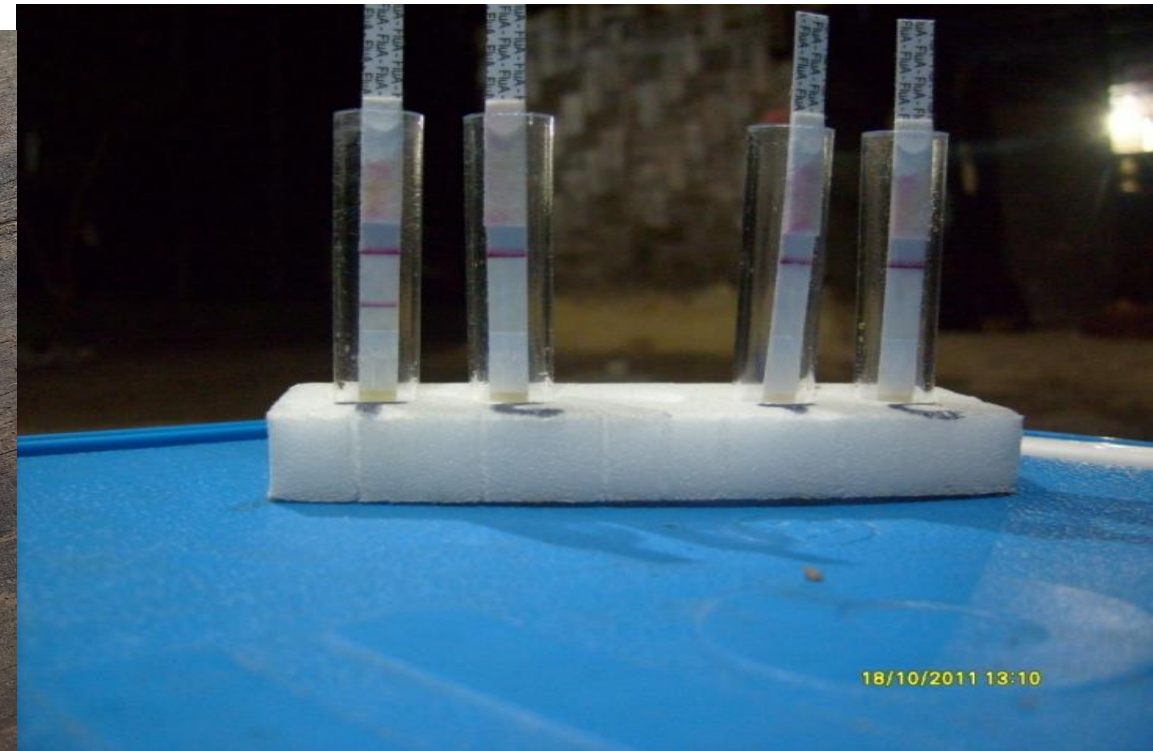
- **Field Rapid test**

- Antigen detection test against *Avian Influenza Virus A and H5*

Molecular test

- real time- PCR for H5 and N1*

- but no sequencing***



Consultative Meeting





Challenge and possible solutions

Sl.No.	Challenges	Possible Interventions	Remarks
1	Inadequate resources (budget, dedicated manpower, supplies and others) for resource inadequate nations	1.1 Manage Contingency Fund for disaster mitigation 1.2 Involve the National Disaster Authority in such disasters at all stages (planning to response) 1.3 International organizations (WOAH, FAO and WHO) to support the capacity building especially the Simulation exercises and advanced diagnostic tests.	Although Bhutan can secure the immediate minimal fund requirement from natural Disaster from Ministry of Finance but looking for disaster specific seed money
2.	Inadequate advocacy and awareness of policy makers, local leaders and financial institutions on such disaster	2.1 Prepare adequate funds for awareness and advocacy 2.2 Budget allocations for such capacity building kept at sub-district, district, regional and national levels on cost sharing basis	
3.	Cross-border harmonized planning for early warning, sharing of information and response almost nil at immediate country border levels	3.1 International level may not impact the planning and sharing of information at the immediate field level due to the distance between the central and state government levels. Best practical solutions can be through immediate bi-lateral or tri-lateral planning process through the facilitation from the International level (WOAH, WHO, FAO including donor agencies). 3.2 Bhutan cross border harmonization example had been pre-COVID-19 for joint mass dog sterilization and vaccination against Rabies. Rel time information sharing	In the past something was working but shattered the linkages after COVID-19 pandemic.

- *Bhutan already revamped the NAIPPP&SOP 2020 almost 4 to 5 times but looking to update further after the 14th Bird Flu outbreak with the spill over of the AI virus from the wild birds to domestic poultry.*
- *The last simulation exercise for Bird Flu was done pre-COVID-19 and as new generation of Veterinary and para-professional has joined the veterinary profession, at least four such capacity building in four regions in the country.*
- *The Department of Livestock is gearing for put more resources for widening the areas of advances for other Avian Influenza sub-type and also other poultry disease diagnosis not only for rapid test but also at molecular levels.*

Acknowledgement



World Organisation
for Animal Health
Founded as OIE

1. **WOAH** (including Regional Representative for Asia and the Pacific Office) for the invitation and coordinating for the Workshop.
2. **Madam DIRECTOR**, Department of Livestock, MOAL Thimphu for nomination.
3. **Dr. Chendu Dorji**, Deputy Chief Veterinary Officer, (EX-Incident Commander) for the recent Bird Flu outbreak in Bhutan for sharing information and some of the slides for the presentation.
4. **CAHEC Qingdao**, Republic of China for your hospitality and caring for us during our stay in Qingdao.

Tashi Deleg
(Thank you)

Contact information



**World Organisation
for Animal Health**
Founded as OIE