



Joint FAO/IAEA Centre  
Nuclear Techniques in Food and Agriculture

# Building Capacities

## Second meeting of the GFTADs SGE-AI

**Carla Bravo de Rueda**

Animal Health Technical Officer



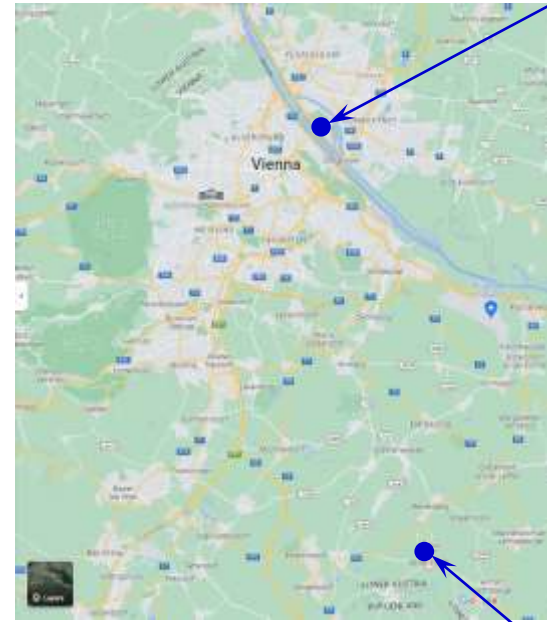
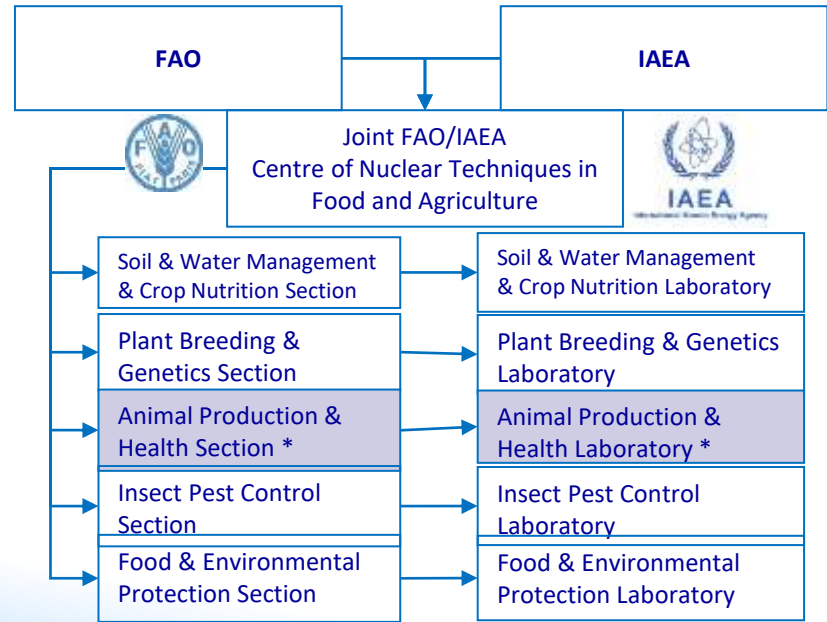
# Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture / Animal Production and Health Section



<https://www.iaea.org/about/animal-production-and-health-section>

<https://www.fao.org/agriculture/fao-iaea-nuclear-techniques/en/>

## Who are we?



**IAEA HQ**  
 Lat, Lon: 48.234908, 16.416851



**IAEA Seibersdorf Laboratories**  
 Lat, Lon: 47.974243, 16.509823

<https://www.google.com/maps>



# Animal Health Emergencies: Preparedness and Response

## Multiple responses to emergency requests from member states

- APH member of FAO-IEC
- Diagnostic packages from IAEA HQ / Laboratory directly to member states official veterinary laboratories
- Emergency response through the FAO global stockpile project based at APHL, Seibersdorf
- Supply with standard reference materials and proficiency tests
- Support in molecular characterization of the locally circulating pathogens
- VETLAB Network to support standardization, upgrade, and implementation / maintenance of ISO17025

## ZODIAC initiative

- Initiated by the IAEA DG & Approved by the BoG of IAEA
- Five pillars [i) Capacities & Technology transfer; ii) Research & development – novel technologies for detection & monitoring Zoonotic diseases iii) Real-time decision-making support; iv) Impact on human health; v) Providing access to an Agency Coordinated Response for Zoonotic diseases].
- Nominating ZODIAC National Coordinators and Laboratories (ZNCs and ZNLs)
- Supply ZNLs with:

- a.** Detection and characterization packages for priority zoonotic diseases
- b.** Establish advanced regional centers for pathogen characterization (WGS)
- c.** Improve the biosafety / biosecurity (bio-risk management) in ZNLs
- d.** Continuous training support for the above-mentioned activities



## Distribution of the ZNLs of ZODIAC

- Blue spots – support **a**.
- Red spots – support **b**.
- Grey spots – ZNLs still not supplied with the support packages



# Technical Support offered to LAC

- ✓ LAC veterinary laboratories ARG, BOL, BRA, BZE, CHI, COL, COS, CUB, DOM, ECU, ELS, GUA, HON, NIC, PAN, PAR, PER, URU, VEN  
(Ref Lab coordination)
- ✓ Labs baseline for AI diagnostics
- ✓ Linked labs with FAO RLC and FAO OER
- ✓ Provided to FAO OER a list of AI experts
- ✓ Weekly meetings with FAO OER
- ✓ Reagents supplied
- ✓ Evaluated SOPs and translate into Spanish
- ✓ Webinar performed: “Ask the experts” 30<sup>th</sup> March 2023
- ✓ Postponed AI laboratory training

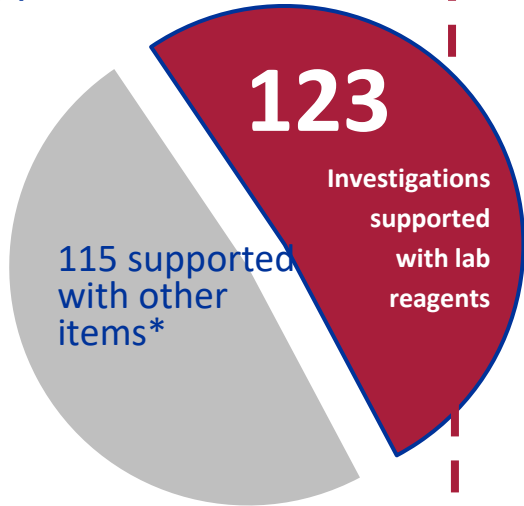


# FAO Emergency stockpile and CJN-APHL reagent hub



## Between 2021-2022

238 investigations supported



### 120 outbreaks in West and Central Africa

Almost all outbreaks supported with laboratory reagents have been in WCA (97,6%), followed by EA (1,63%) and NENA (0,81%).



### 14 countries in WCA, EA and NENA

Most of the outbreak investigations supported were in Ghana (70), Guinea (20), and Niger (17).



### 93,5% of outbreaks – Avian Influenza

Avian Influenza (H5N1, H5N8, H9N2) was the most common disease supported by reagent hub, followed by Anthrax (3,25%) and Rabies (2,44%).



### Delivery time decreased by 30%

Within 2 years, the duration from an official request for emergency help till the delivery of laboratory reagents to the recipient country was decreased from 72 to 51 days.

\*Includes support provided through Emergency stockpile project with PPE, sample shipping containers, etc..

# Detecting AIV clade 2.3.4.4b



Veterinary Research Communications  
<https://doi.org/10.1007/s11259-023-10100-6>

## BRIEF REPORT

### Avian influenza H5N1 in a great white pelican (*Pelecanus onocrotalus*), Mauritania 2022

Abdellahi Diambar Beyit<sup>1</sup> · Irene K. Meki<sup>2</sup> · Yahya Barry<sup>1</sup> · Mohamed Lemine Haki<sup>1</sup> · Abdellahi El Ghassem<sup>1</sup> · Sidi Mohamed Hamma<sup>1</sup> · Navee Abdelwahab<sup>1</sup> · Baba Doumbia<sup>3</sup> · Hacem Ahmed Benane<sup>3</sup> · Daf Sehla Daf<sup>4</sup> · Zein El Abidine Sidatt<sup>4</sup> · Lemrabott Ould Mekhalla<sup>5</sup> · Bezeid El Mamy<sup>5,6</sup> · Mohamed Ould Baba Gueya<sup>7</sup> · Tirumala Bharani Kumar Settypalli<sup>2</sup> · Hatem Ouled Ahmed Ben Ali<sup>2</sup> · Sneha Datta<sup>2</sup> · Giovanni Cattoli<sup>2</sup> · Charles E. Lamien<sup>2</sup> · William G. Dundon<sup>2</sup>

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Communication



### Emergence of High Pathogenicity Avian Influenza Virus H5N1 Clade 2.3.4.4b in Wild Birds and Poultry in Botswana

Samantha L. Letsholo<sup>1,\*</sup>, Joe James<sup>2,3</sup>, Stephanie M. Meyer<sup>2</sup>, Alexander M. P. Byrne<sup>2,4</sup>, Scott M. Reid<sup>2</sup>, Tirumala B. K. Settypalli<sup>3,5</sup>, Sneha Datta<sup>3</sup>, Lethogile Oarabile<sup>4</sup>, Obakeng Kemolatlhe<sup>4</sup>, Kgakgamatso T. Pebe<sup>4</sup>, Bruce R. Mafonko<sup>4</sup>, Tebogoo J. Kgotlele<sup>1</sup>, Kago Kumile<sup>1</sup>, Boitumelo Modise<sup>1</sup>, Carter Thanda<sup>1</sup>, John F. C. Nyange<sup>1</sup>, Chandapiwa Marobela-Raborokgwe<sup>1</sup>, Giovanni Cattoli<sup>3</sup>, Charles E. Lamien<sup>3,6</sup>, Ian H. Brown<sup>2</sup>, William G. Dundon<sup>3,7</sup> and Ashley C. Banyard<sup>2,\*</sup>

Emerging Microbes & Infections  
2023, VOL. 12, 2167610 (4 pages)  
<https://doi.org/10.1080/22221751.2023.2167610>



LETTER

 OPEN ACCESS 

### Highly pathogenic avian influenza H5N1 virus outbreak among Cape cormorants (*Phalacrocorax capensis*) in Namibia, 2022

Umberto Molini<sup>1,2,3</sup>, John Yabe<sup>1,4</sup>, Irene K. Meki<sup>5</sup>, Hatem Ouled Ahmed Ben Ali<sup>5</sup>, Tirumala B. K. Settypalli<sup>6</sup>, Sneha Datta<sup>6</sup>, Lauren Michelle Coetzee<sup>7,8</sup>, Ellini Hamunyela<sup>9</sup>, Siegfried Khaïseb<sup>10,11</sup>, Giovanni Cattoli<sup>6</sup>, Charles E. Lamien<sup>12</sup> and William G. Dundon<sup>13</sup>

# Improving AIV detection

- **Problem:** maintaining cold chain for PCR reagents
- Lyophilised reagents are a good alternative
- Laboratories may choose assays depending on their circumstances



Short communication

Comparative assessment of lyophilized and *wet* reagents for the molecular detection of H5N1 high pathogenic avian influenza virus and H9N2 low pathogenic avian influenza virus

Agathe Auer<sup>a,b,\*</sup>, Valentina Panzarin<sup>c</sup>, Isabella Monne<sup>c</sup>, Marika Crimauudo<sup>c</sup>, Angeliqne Angot<sup>a</sup>, Morgane Gourlaouen<sup>a</sup>, Charles E. Lamien<sup>b</sup>, Giovanni Cattoli<sup>b</sup>





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*Thank you!*

