World Organisation for Animal Health

Ministry of Agriculture
Republic of Indonesia

In partnership with Canada

Singapore

Biothreat Reduction: Situation update

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Presentation Outlines

1. Overview of National Mechanisms and Governance
2. Legal and Policy Frameworks
3. One Health Priority Zoonotic Diseases
4. Laboratory Systems: Network and Standards
5. Laboratory Systems: Training
6. Preparedness and Response
7. Challenges
8. Recommendations

1. Overview of National Mechanisms & Governance

Whole-of-Government and Whole of Society coordination across public health, animal health, food safety, and environmental agencies, allowing us to take a unified and proactive approach to biothreat detection and reduction.

ANIMAL & VETERINARY SERVICE
A cluster of NParks

Singapore Food Agency

MINISTRY OF HEALTH SINGAPORE

Communicable Diseases Agency Singapore
Prepare · Prevent · Protect

MINISTRY OF HOME AFFAIRS

HTX

National Environment Agency
Safeguard · Nurture · Cherish

PUB SINGAPORE'S NATIONAL WATER AGENCY

MINDEF SINGAPORE

GMAC SINGAPORE

2. Legal & Policy Frameworks

1) Animals and Birds Act (Animal Veterinary Service)

- License to Possess Veterinary Biologics
- AVS Select List

2) The Biological Agents and Toxin Act (Ministry of Health)

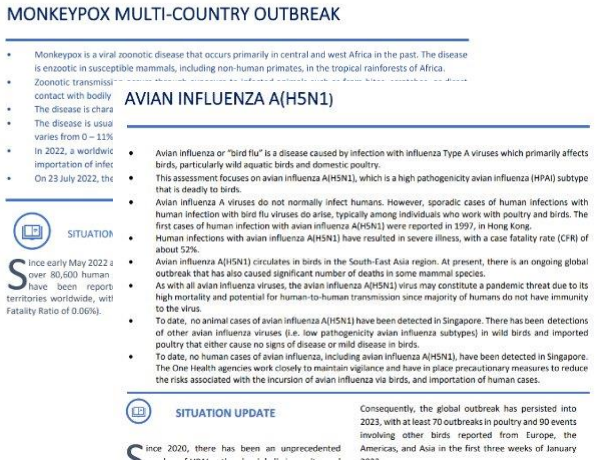
- Regulate the possession, use, import, transshipment, transfer and transportation of biological agents, inactivated biological agents and toxins, to provide for safe practices in the handling of such biological agents and toxins.

3. One Health Prority Zoonotic Diseases

Top 5 One Health zoonoses of priority

- Avian Influenza
- Coronavirus disease (COVID-19)
- Salmonellosis (non-typhoidal)
- Yellow Fever
- Leptospirosis









10 other zoonoses to be monitored closely

Categories (Main transmission route)	**Zoonotic diseases**
Animal Borne Diseases	•Nipah virus •Rabies
Vector Borne (Mosquito) Diseases	•Japanese Encephalitis •Dengue Fever •Zika virus
Rodent Borne Disease	•Hantavirus Disease
Food Borne Diseases	•Campylobacteriosis •Hepatitis E
Droplet Borne Diseases	•Severe Acute Respiratory Syndrome Middle Eastern Respiratory Syndrome

*The One Health Zoonotic Disease Prioritization (OHZDP) Process uses a **mixed methods prioritization process** developed by the U.S. Centers for Disease Control and Prevention's (CDC) One Health Office.*

4. Laboratory System: Network and Standards

Laboratory Network Overview

National Laboratories Network comprising of government laboratories from animal, human and environmental sectors

Centre for Animal and Veterinary Sciences (National Animal Health Laboratory)

- Advanced laboratory and diagnostic capabilities, including multiple whole genomic genome platforms and development of generative and agentic artificial intelligence capabilities
- Strong linkages across human, and animal, and environmental health laboratories support cross-sectoral diagnostics, research, and information exchange, which is essential critical for early detection of zoonotic threats.
- ASEAN Regional Reference Centre for Biorisk Management and Quality Assurance

Standards

- Biorisk Management Standard for Large-Scale Work involving Biological Agents
- Singapore Standard: Biorisk Management for Laboratories and other related organisations

5. Laboratory System: Training

Singapore's Regional Reference Center for Biorisk Management and Quality Assurance was endorsed at the ASEAN Ministerial Meeting on Agriculture and Forestry in October 2020

- Annual Regional Workshops for ASEAN Member States in conjunction with ACDP, Australia

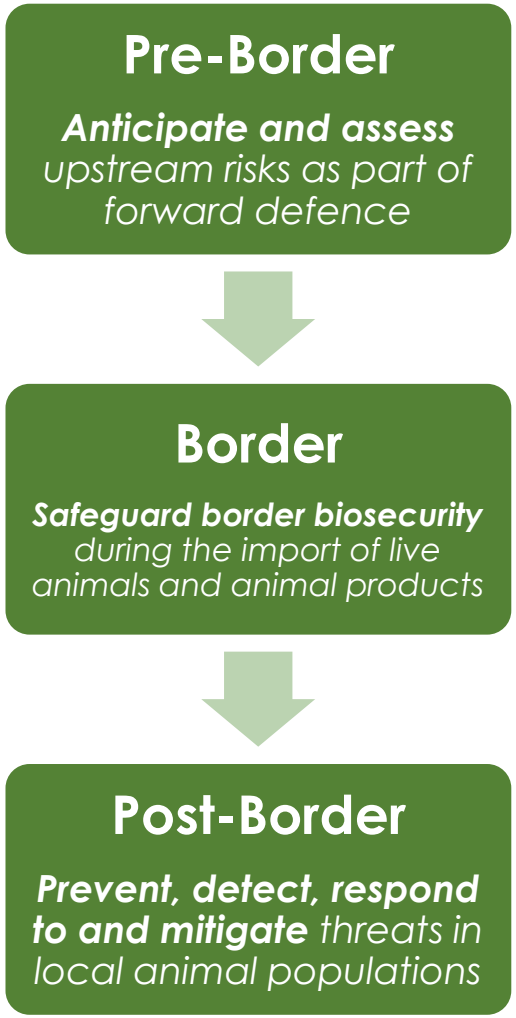
    1. Biorisk Management, 2023
    2. Risk Assessment in Biorisk Management, 2024
    3. Introduction to Biorisk Management, 2025





6. Preparedness & Response

A multi-layer approach to protect against disease risks



- Work closely with regional partners, WOAH, and academic institutions to strengthen biosurveillance and support capacity building in Southeast Asia,
  - ✓ ASEAN Declaration on Biosafety and Biosecurity
- Risk-based and integrated biosurveillance systems across human, animal, and environmental domains
- Notifiable Disease Reporting System
- Regularly conducts multi-agency and cross-sectoral exercises, including simulation scenarios involving zoonotic outbreaks such as avian influenza and rabies
  - ✓ Operational coordination, crisis management protocols, and aligning communications management
- Supports research, innovation, and international collaboration.

7.Challenges

- Pathogen diversity requires advanced laboratory capabilities and in-depth analyses infrastructure
- Targeted vs. Agnostic testing
- Data Silos

8. Recommendations

- Promote harmonization and sharing of biosecurity protocols and best practices through workshops and table-top exercises
- Secured platforms for data sharing and information exchange
- Potential use of environmental and ecosystem-based biosurveillance for early warning

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Thank You