

Juan Lubroth

Chief Veterinary Officer

Food and Agriculture Organization of the UN



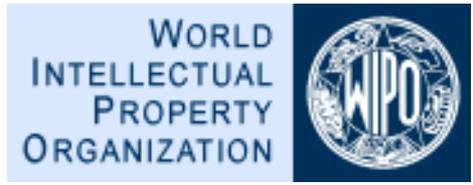
WORLD TRADE ORGANIZATION



WHO

UNEP

UN
DP



Livelihoods

(Poverty Alleviation and Equity)



Food Security

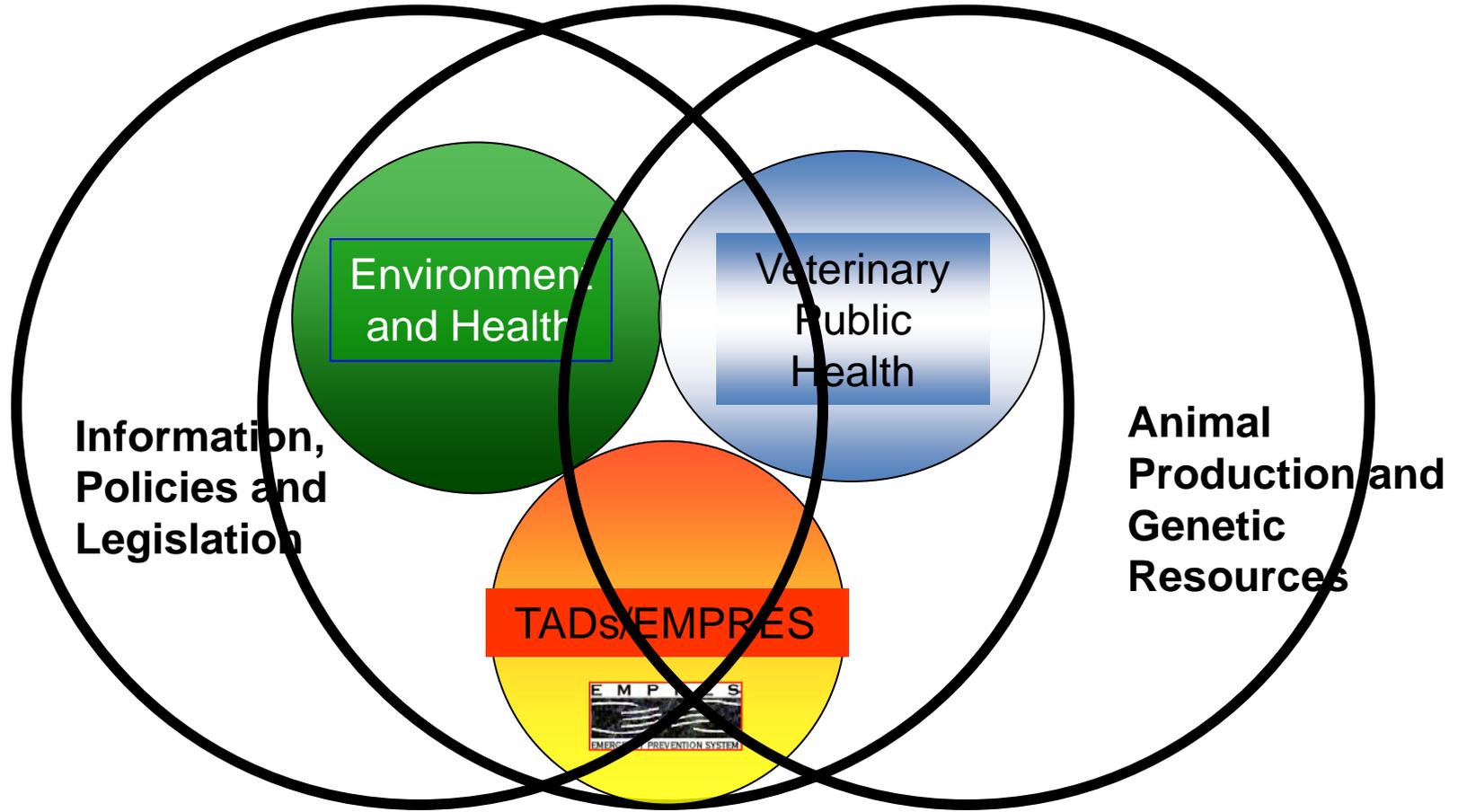
(and Food Safety)



Millennium Development Goals

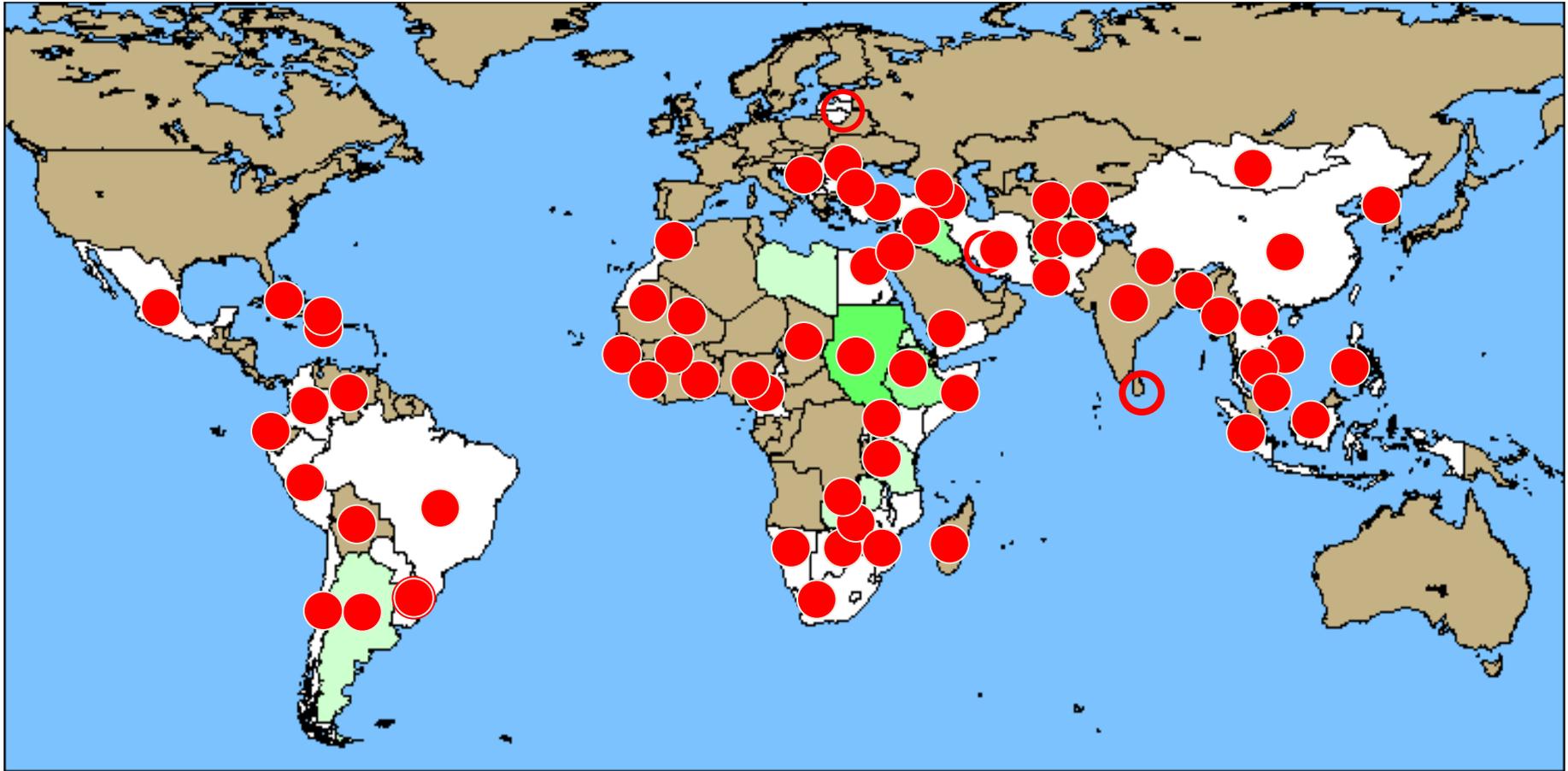
- 1. Eradicate extreme poverty and hunger**
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS and other diseases
- 7. Ensure environmental sustainability**
- 8. Global partnership for development**





Animal Health Service





AGAH - Animal Health Service 2008-2010

Foot-and-mouth Disease, Classical Swine Fever, African Swine Fever, Rinderpest, PPR, Newcastle, Brucellosis, Rift Valley Fever, HPAI ...





FAO/OIE

GF-TADs

GLOBAL FRAMEWORK FOR THE
PROGRESSIVE CONTROL OF
TRANSBOUNDARY ANIMAL DISEASES

GOAL of GF-TADs = Vision Development Objective

 To improve the protein food security, alleviate poverty, and improve the incomes of developing countries

 Safeguard the world livestock industry (of developed as well as developing countries) from repeat shocks of infectious disease epidemics

 Promoting safe and globalised trade in livestock and animal products



Concepts and key epidemiological aspects of GF-TADs

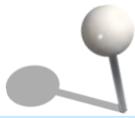
- Disease and *Infection* at the SOURCE
- Upstream investigation
- Epidemiology ~ Laboratory Networks
- Knowledge on animal production, land usage, marketing schemes, movement patterns ... an integrated and holistic approach.
- **GL**lobal **E**arly **W**arning **S**ystem **FAO-OIE-WHO**



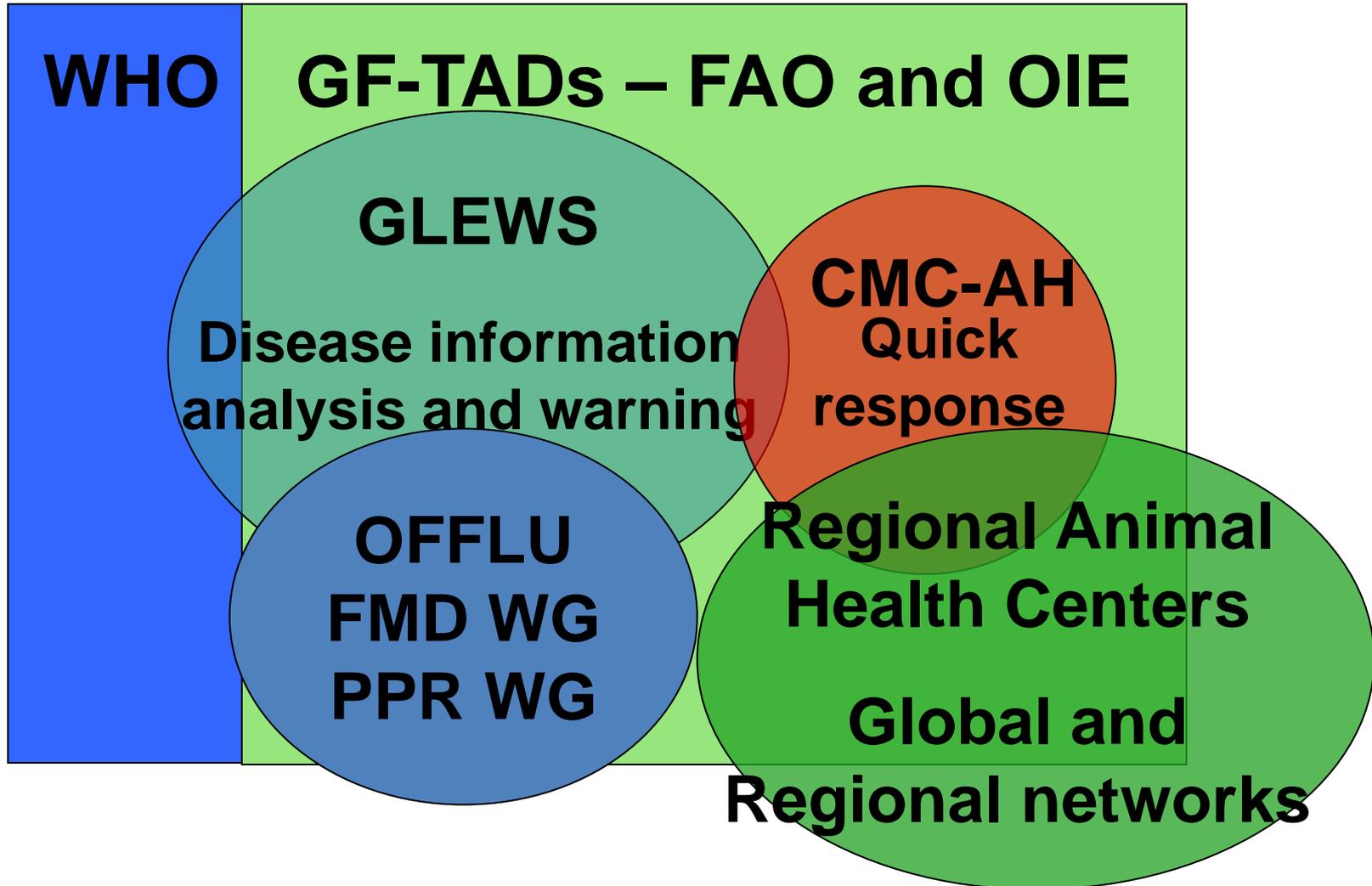


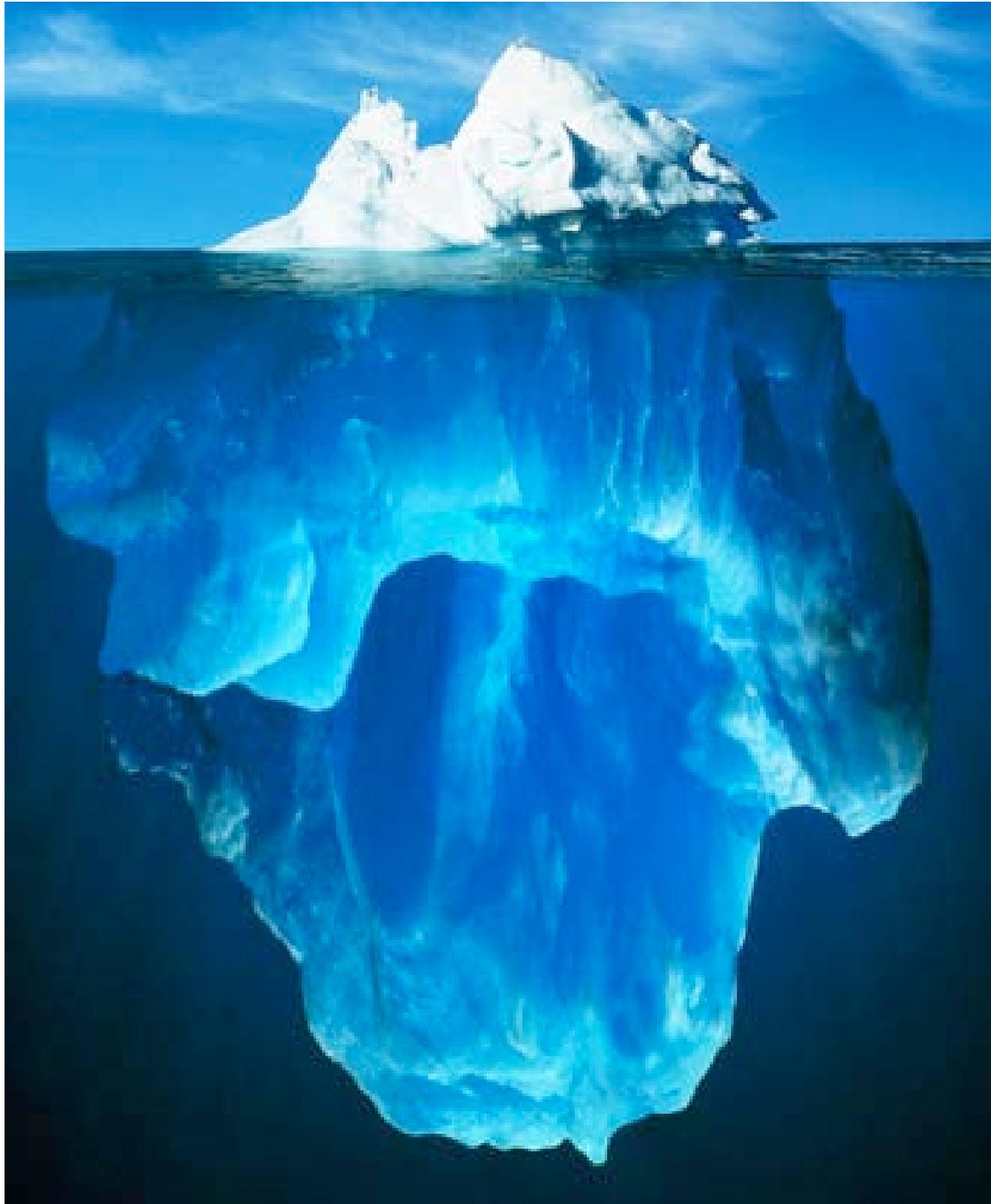
Animal Health Standard, Guidelines and Recommendations Setting and Adoption	Standards, Guidelines and Recommendations Setting	
Good Farming Practices Guidelines and Strategies		Good Farming Practices & Strategies
Animal Disease Information and Intelligence	Official Disease Information	
	Disease Tracking	
	Disease intelligence	
Expertise on Animal Health worldwide	Expertise	
Expertise for Development Programs on Animal Health	Expertise for Development Programs on Animal Health	
Animal Health Publications	Technical and Scientific Publications	
Capacity Building Programs on Animal Health on standards, guidelines and recommendations implementation	Global	
	Regional	National
Development programs on Animal Health	Global	
	Regional	
	National	





FAO and OIE cooperation and “tools”





Current selected disease: All Diseases

Choose Disease ▾ | Map Style ▾ | Show Legend | Printable Map



- Home
- About GLEWS
 - Project background
 - Glews task force
 - Objectives
- Publications

Latest Events

- Page 1 of 6
- « First « Previous Next » Last »»
- 02/06/2008: Highly pathogenic avian influenza in Administrative unit not available (Bassas da India)
 - 02/06/2008: Avian mycoplasmosis (*M. synsheepae*) in (Rwanda)
 - 30/05/2008: Avian infectious bronchitis in (Brazil)
 - 28/05/2008: Avian infectious laryngotracheitis in (Bermuda)



“ The Global Early Warning and Response System (GLEWS) is a joint system that builds on the added value of combining and coordinating the alert and response mechanisms

H5N1 HPAI



- **Regional Projects** (initial FAO regional and national Technical Cooperation Projects supported by donor contributions ~ USD 330 million)
- **Networks – Epidemiology, Diagnostic Laboratories, Socio-Economic Studies, Wildlife ...)**
- **Capacity Building**
- **Cross-border coordination**
- Laboratory equipment, reagents, supplies, personal protection and disinfection equipment, vaccines, ...

Highly Pathogenic Avian Influenza

Five remaining enzootic agro-ecosystems:

China; Egypt; India/Bangladesh (Indo-Gangetic plain); Indonesia; Vietnam (greater Mekong)

FAO Position Paper on HPAI in Endemic countries (innovative approaches including new vaccines, genetically resistant poultry, wildlife and production/market surveillance and stronger public-private partnerships)



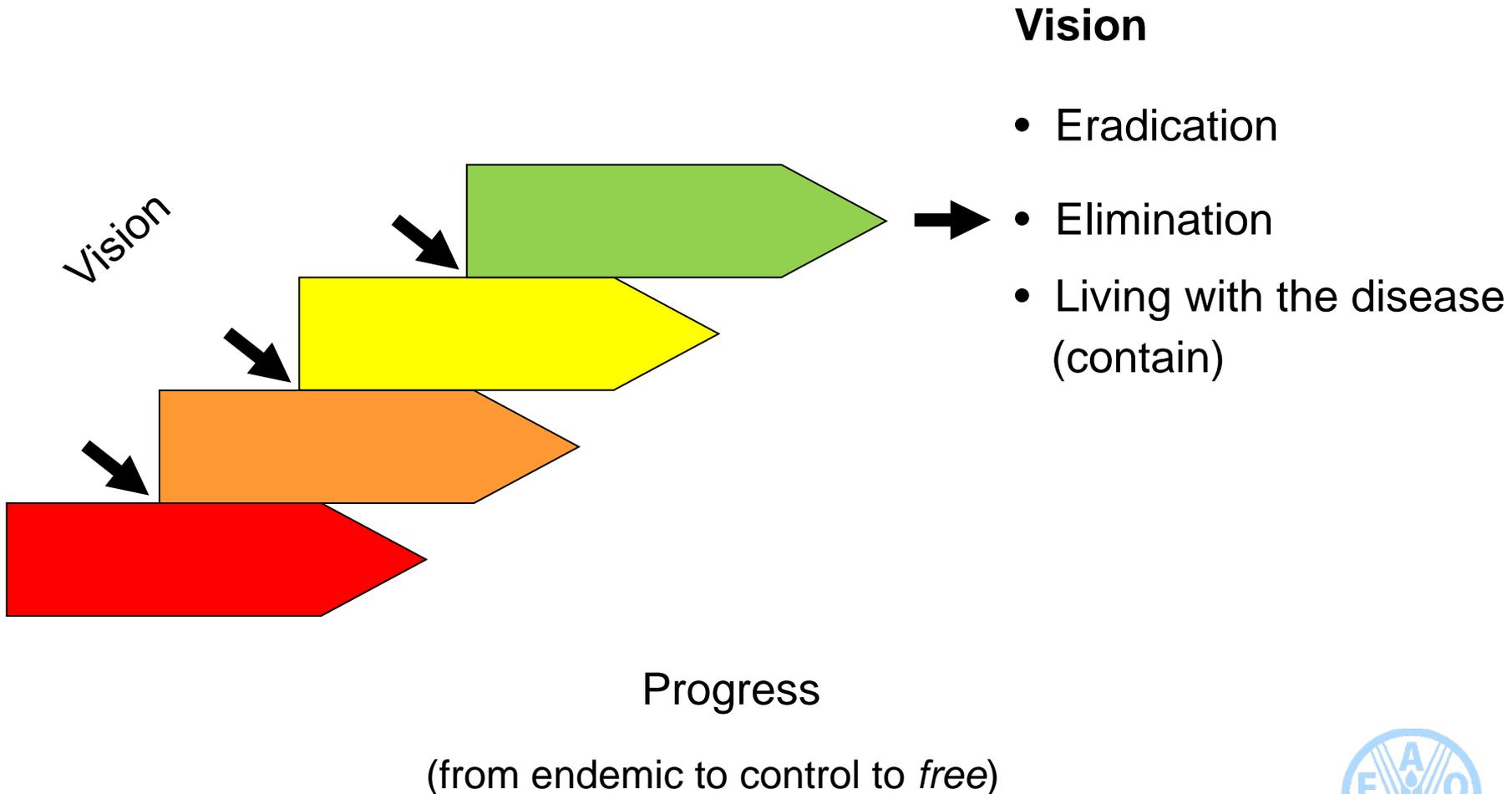
Approaches to Controlling, Preventing and Eliminating H5N1 Highly Pathogenic Avian Influenza in Endemic Countries

Working Draft
16 April 2010

Legend

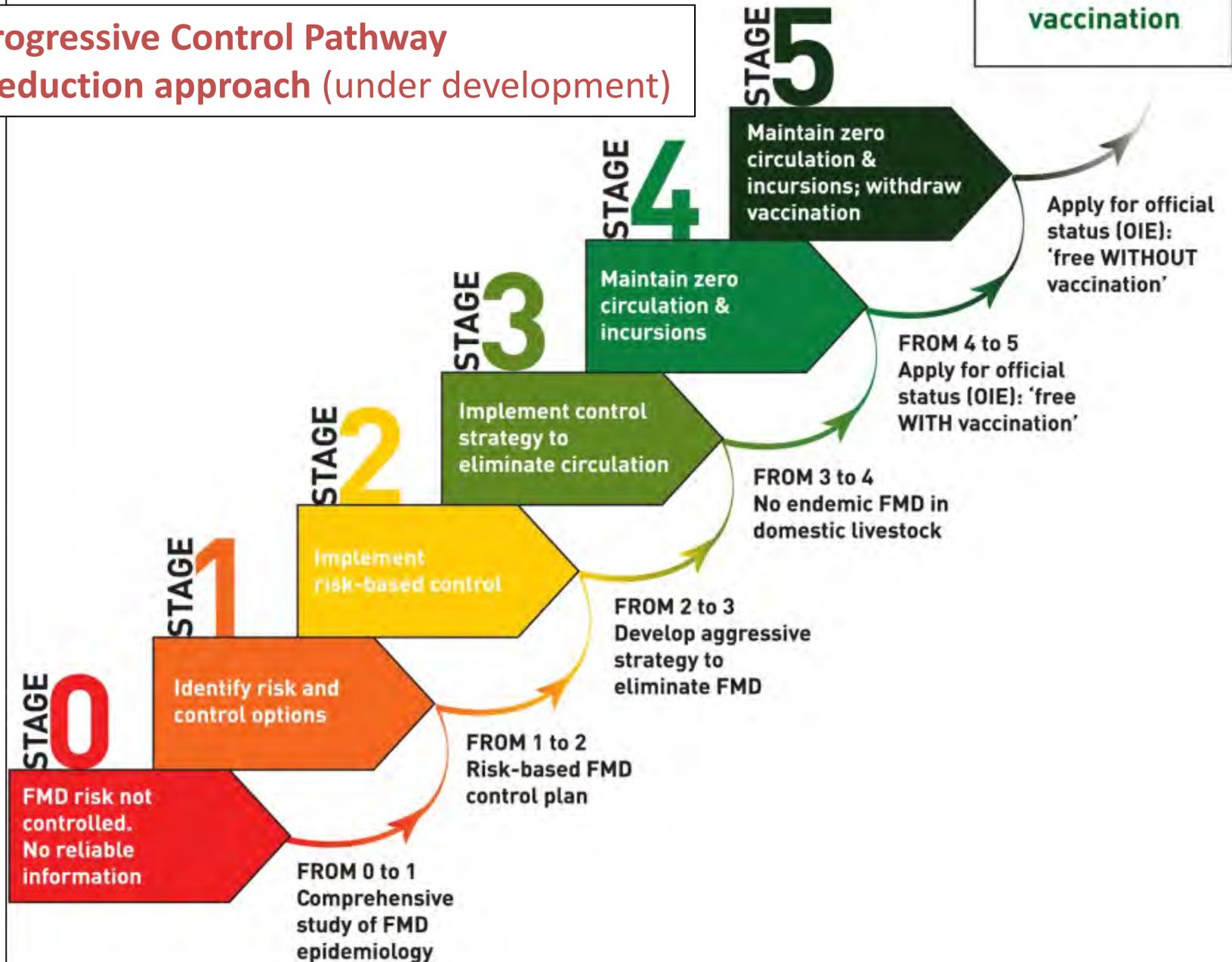
1 month
Confirmed (H5N1)
1 month
Confirmed (H5)
Past 5 months
Confirmed (H5N1)
Past 5 months
Confirmed (H5)

Progressive Control

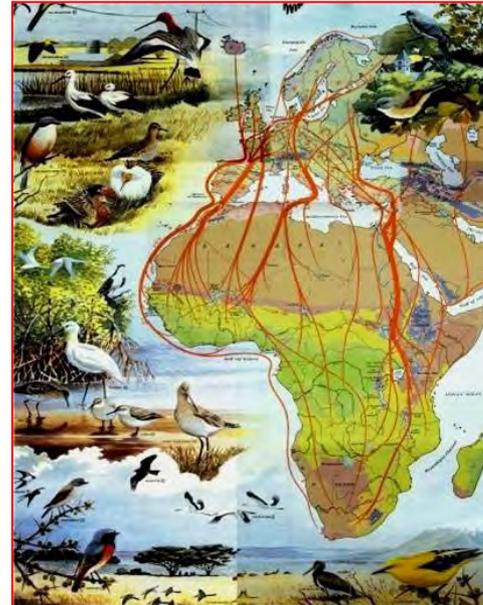


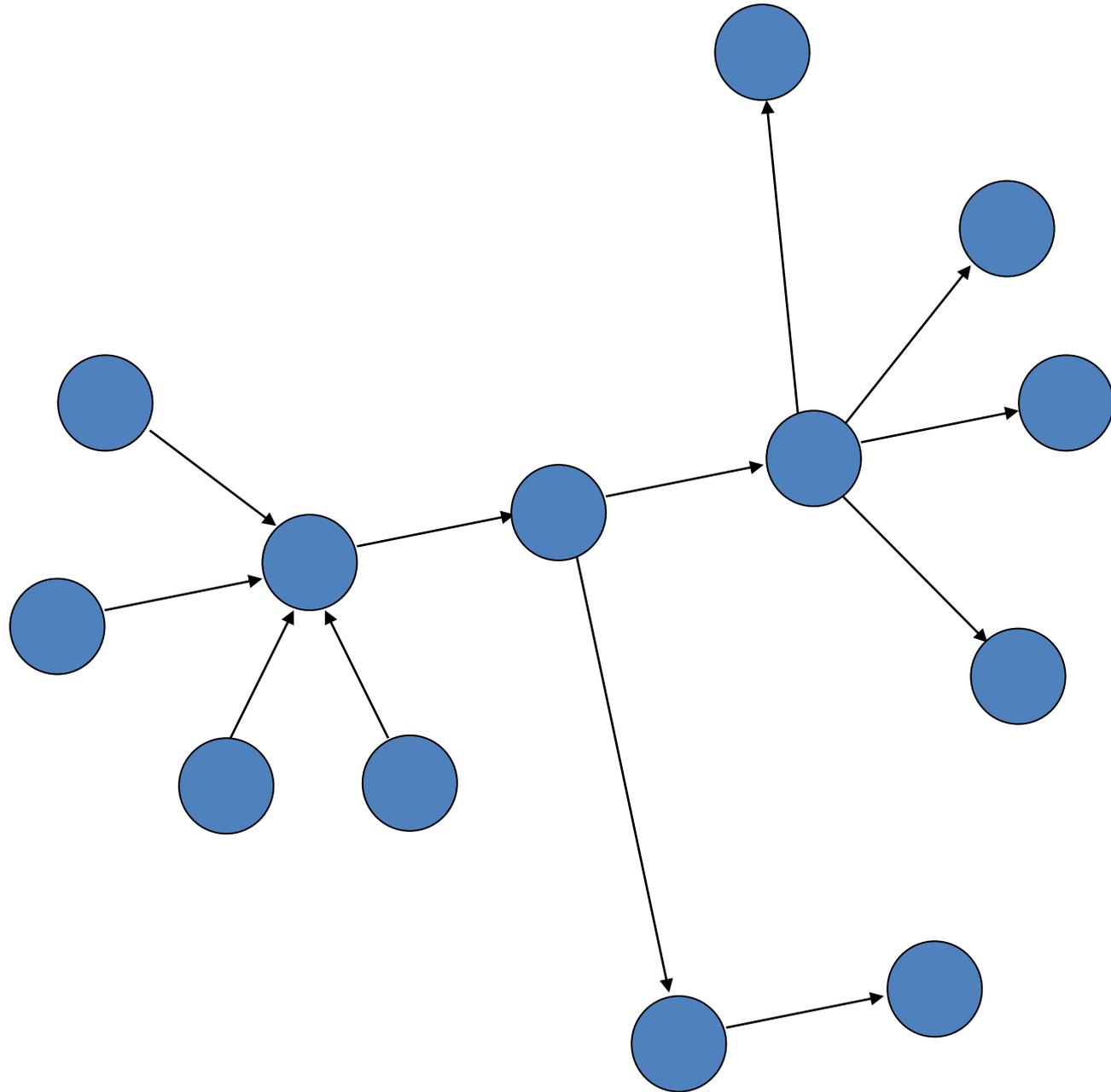
Foot-and-Mouth Disease (FMD)

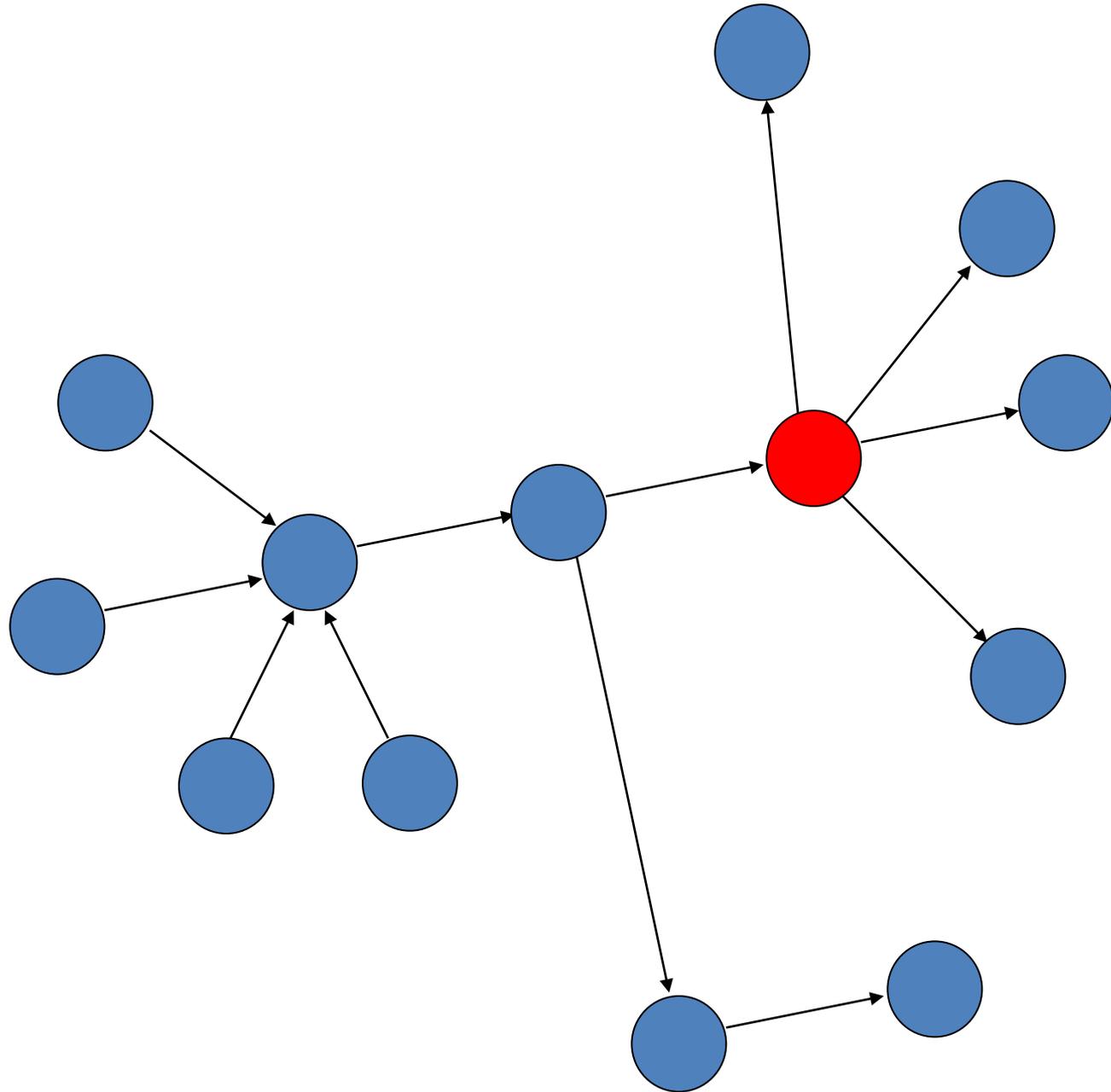
FAO Progressive Control Pathway
- risk reduction approach (under development)

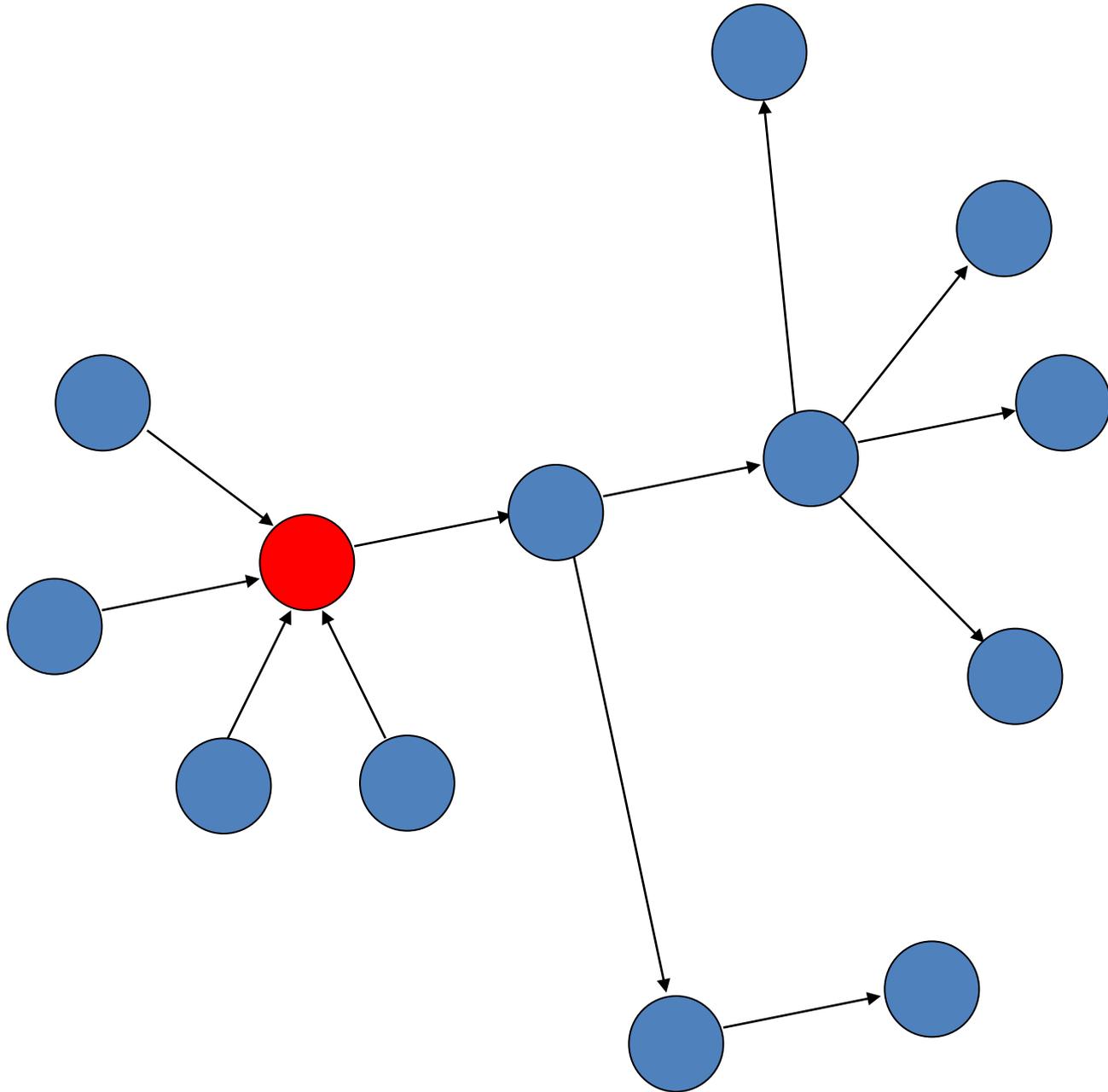


Critical control points....



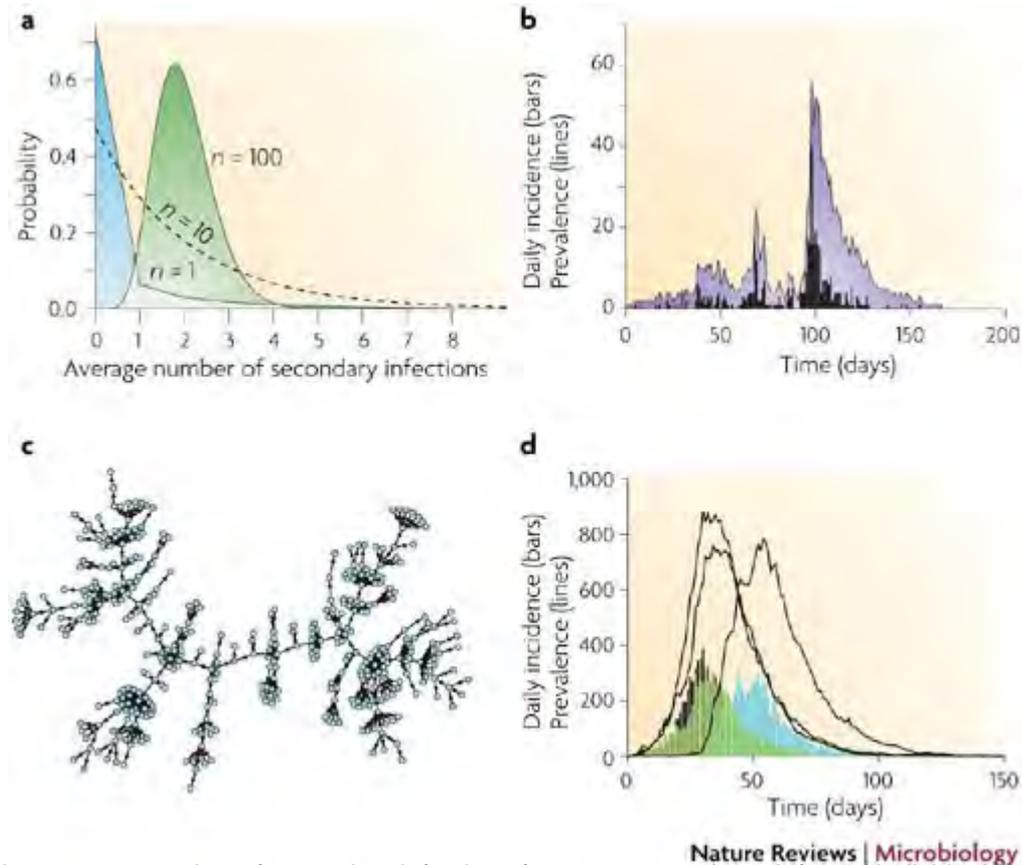








c

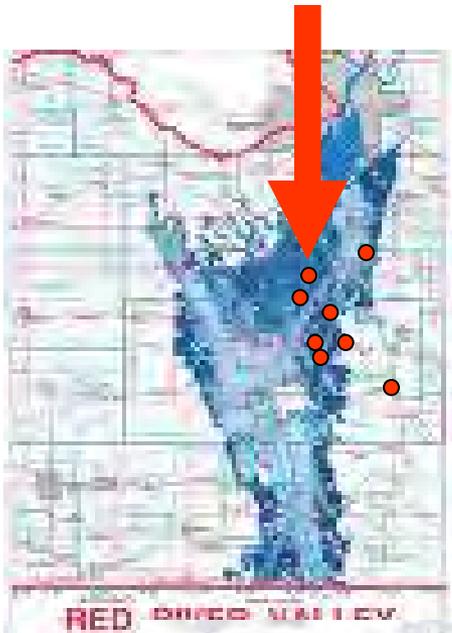


a | The distribution of the average number of secondary infections for $n = 1$, 10 and 100 infected individuals when the underlying offspring distribution is highly skew (following the negative binomial distribution with mean 2 and dispersion parameter $k = 0.1$, which corresponds to the estimates for severe acute respiratory syndrome (SARS) and measles from Ref. 21). **b** | In a small population of 500 individuals, the simulated emergent population dynamics of a susceptible–infected–recovered (SIR) model of infection can show complex, resurgent behaviour owing to the small number of infected individuals at any time. **c** | The resulting transmission tree shows a similar pattern to that observed for SARS in Singapore, where a few individuals were responsible for most new infections91. **d** | In a larger simulated population of 10,000, the daily incidence of infection is sufficiently large for the average number of new infections to approach the normal distribution and the emergent population dynamics to show a classic epidemic pattern. Stochastic effects might still be important, however, in the early stages of the epidemic, as shown here by three simulated epidemics that were initiated at the same time with identical parameters but produced different epidemic timing.

Nicholas C. Grassly & Christophe Fraser. 2008. [Mathematical models of infectious disease transmission](#) *Nature Reviews Microbiology* 6, 477-487

EVENT TRACKING and RESPONSE

DRIVERS



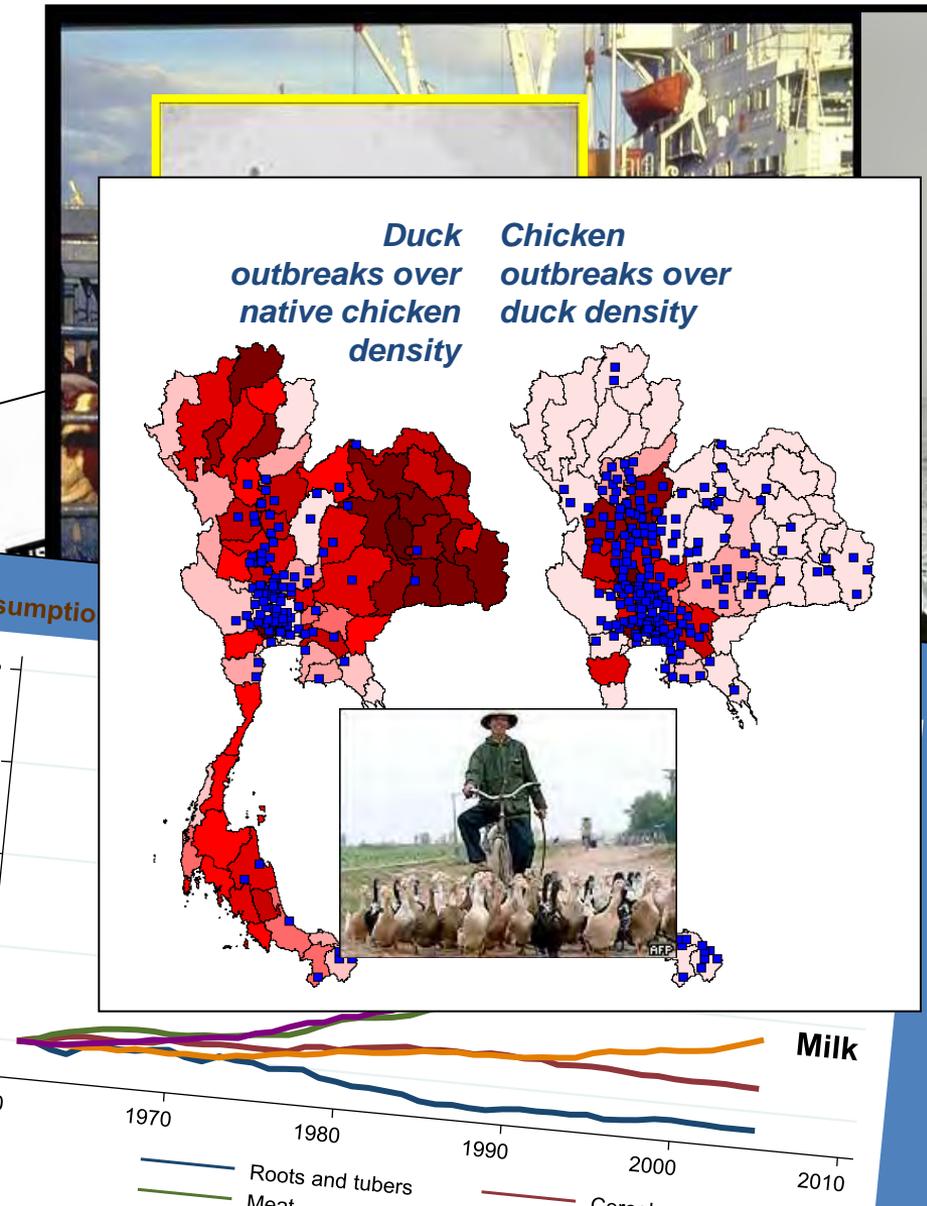
Tackling the disease at **source**

PREVENTION



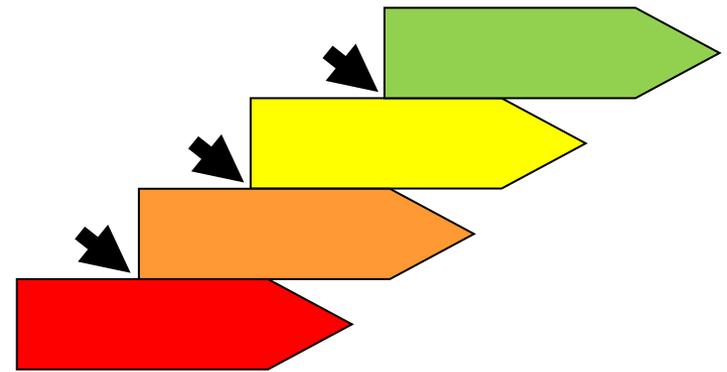
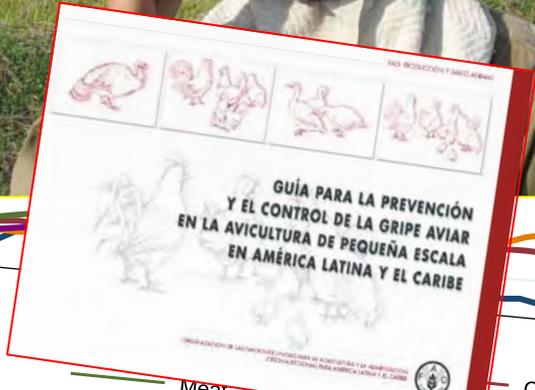
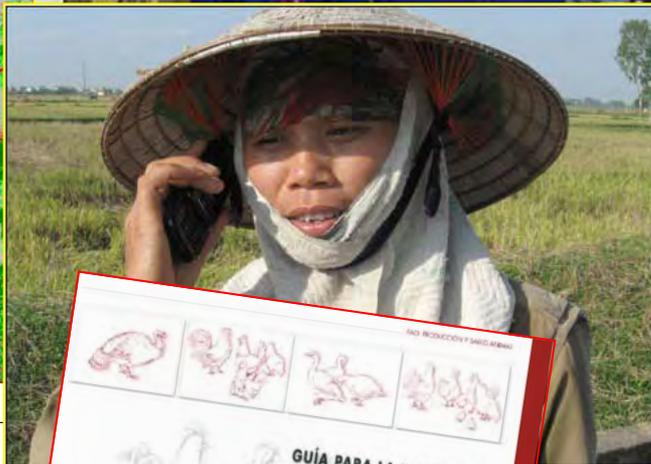
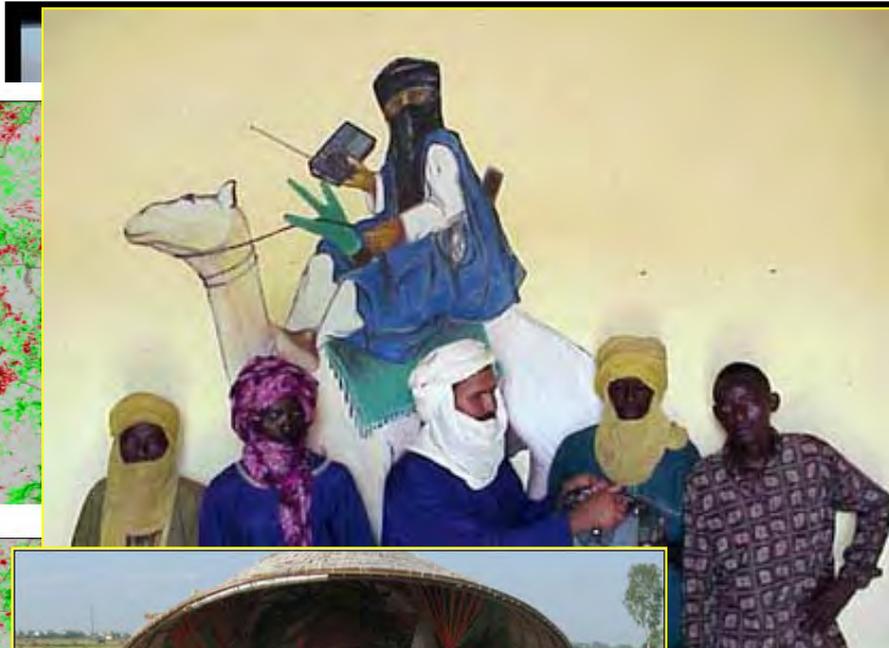
Progressive Control requires a Holistic Approach

- Disease Ecology and Environment
- Aetiological agents and its genetic and antigenic changes and relationship
- Farming Systems
- Husbandry Practices and Biosecurity
- Commerce, Movement, and Trends
- Socio-Economic Factors
- Land Use



Progressive Control requires a Holistic Approach

- **Climate and Environment**
- **Communication**
 - Best Practices
 - Options
 - Participatory
 - Truthful
 - Inter-Agency
- **Vision**



Implementation

- These altruistic, humane, philanthropic, approaches cannot be done alone





USA



RVC

Royal Veterinary College
University of London



Istituto Zooprofilattico
Sperimentale delle Venezie



Thailand

Department of Livestock
Development



Việt Nam

Department of Animal Health



Massey University

New Zealand



Australian Government
Department of Agriculture,
Fisheries and Forestry
Australia



Université Libre de
Bruxelles

Belgium



France



RÉPUBLIQUE FRANÇAISE



PR China

Ministry of Agriculture







- To improve the outcome of efforts, FAO collaborates with OIE, primarily devoted to animal health, welfare and trade of animal products.
- FAO collaborates with the WHO, its sister organisation, on issues related to public health implications of domestic animal farming and wildlife.
- OFFLU Network's objectives:
 - to **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
 - to offer **technical advice, training** and veterinary expertise to Member Countries to assist in the prevention, diagnosis, surveillance and control of animal influenza
 - to **collaborate** with the WHO influenza network on issues relating to the animal-human interface, including early preparation of human vaccine
 - to highlight influenza research needs, **promote** their development and ensure coordination.



- FAO AGAH has a vast network to support animal production and health systems, including strengthening of the official veterinary services, foment public-private partnerships and investments (financial institutions), especially focused for the benefit of low income countries. ... *Tackling the disease at source* benefits all.
- In the aftermath of H5N1 pandemic threat, this support (USD 330 million since 2004) allowed the upgrading of veterinary laboratories and epidemiological units, provision of millions of doses of vaccines, reagents, ring testing schemes, socioeconomic and market chain studies...
- In the case of influenza, surveillance activities have yielded a wealth of viral isolates and epidemiological information – in poultry and wild birds - which are essential to understand the complexity of the infection and to implement or advise on appropriate prevention, detection and control strategies.



- FAO would expect the information generated through support actions to be fully exploited.
- *Castelbrando?* Why has CDC, a public health agency, decided to fund and organise this meeting?
- Why is a major public health agency seeking support from the international animal health and husbandry organisations?
- What is the objective of this workshop, which includes renowned experts on animal and human influenza viruses?
- We have heard from Nancy and others that animal viruses constantly represent a public health risk.
- At FAO we agree.



“The purpose of medical research is to analyse and understand health and disease. A key and expensive element is the study of populations to explore how interactions between behaviour and environment, in the context of genetic diversity, determine causation and variation in health and disease. As funders of public health research, we need to ensure that research outputs are used to maximise knowledge and potential health benefits. In turn, the populations who participate in research, and the tax payers who foot the bill, have the right to expect that every last ounce of knowledge will be wrung from the research.”



Sharing research data to improve public health



The purpose of medical research is to analyse and understand health and disease. A key and expensive element is the study of populations to explore how interactions between behaviour and environment, in the context of genetic diversity, determine causation and variation in health and disease. As funders of public health research, we need to ensure that research outputs are used to maximise knowledge and potential health benefits. In turn, the populations who participate in research, and the taxpayers who foot the bill, have the right to expect that every last ounce of knowledge will be wrung from the research.

Ensuring data are made widely available to the research community accelerates the pace of discovery and enhances the efficiency of the research enterprise. In many research fields—from genetics and molecular biology to the social sciences—data sharing is already

ingrained in how researchers work. In genetics and genomics, the pooling of studies of different populations has led to an explosion of knowledge on the genetic determinants of human variation in health and disease.¹ Well-established repositories and tools enable researchers to access and interrogate shared data resources, and build on one another's work.²

By contrast, this culture has yet to be widely embraced by the public health research community. Much of the infrastructures, technical standards, and incentives that are needed to support data sharing are lacking, and these data can hold particular sensitivities. And some researchers are reluctant to share data. Too often, data are treated as the private property of investigators who aim to maximise their publication record at the expense of the widest possible use of the data. This situation threatens to limit both the

Published Online
January 10, 2011
DOI:10.1016/S0140-
6736(10)62234-9

Mark Walport - Wellcome Trust, London NW1 2BE, UK
Paul Brest - Hewlett Foundation, Menlo Park, CA, USA

- From M. Walport and Brest's letter to Lancet of 7 Jan 2011.
- **Vision**
- *We intend to work together to increase the availability to the scientific community of the research data we collected from populations for the purpose of health research, and to promote the efficient use of those data to accelerate improvements in public health*



Principles

- “Funders agree to promote greater access to and use of data in ways that are:
- ***Equitable***: it should recognise and balance the needs of researchers who generate and use data, other analysts who might want to re-use those data, and communities and funders who expect health benefits to arise from research
- ***Ethical***: it should protect the privacy of individuals and the dignity of communities, while simultaneously respecting the imperative to improve public health through the most productive use of data
- ***Efficient***: it should improve the quality and the value of research, and increase its contribution to improving public health; approaches should be proportionate and build on existing practice and reduce unnecessary duplication and competition ...”



Immediate goals

- “Standards of data management are developed, promoted, and entrenched so that research data can be shared routinely and reused effectively
- Funders and employers of researchers recognize data management and sharing of well-managed datasets as an important professional indicator of success in research
- Researchers creating datasets for secondary analysis from shared primary data are expected to share those datasets and act with integrity and in line with good practice, giving due acknowledgement to the generators of the original data”



Longer-term aspirations

- Data collected for health research are made available to the scientific community for analysis which adds value to the existing knowledge and which leads to improvements in health
- The research community, particularly those collecting data in developing countries, develop the capacity to manage and analyse those data locally, as well as contributing to international analysis efforts
- To the extent possible, datasets underpinning research papers in peer-reviewed journals are archived and made available to other researchers in a clear and transparent matter
- The human and technical resources and infrastructures needed to support data management, archiving and access are developed and supported for long-term sustainability



Tripartite Position Paper April 2010

The FAO-OIE-WHO Collaboration

Sharing responsibilities
and coordinating global activities
to address health risks at the
animal-human-ecosystems interfaces

A Tripartite Concept Note



April 2010

VISION
A world capable of
preventing, detecting,
containing, eliminating,
and responding to animal
and public health risks
attributable to zoonoses
and animal diseases with
an impact on food security
through multi-sectoral
cooperation and strong
partnerships.

BACKGROUND

Pathogens
populations
and human
animals and
a stake in,
control, yet
parasites
their life cycle
is more and
ensures the
replicating
host to a su

While the in
across anim
has been al
and region
systems are
with limited
However, th
highly patho
and control



Thank you