

Minimising the impact of emerging zoonotic threats

What we know and what we might do

NOT FOR CITATION

Based on an Evidence note prepared by DFID's Research and Evidence Division

Presented by Tim Leyland, Livestock Adviser, DFID.

Objective of this presentation

**Review what we know about recent zoonotic disease outbreaks.
Identify key players, lessons and challenges
Assess evidence gaps to support improved decision making**

**Review the impact
and drivers of
emerging disease**

- 1. Changes in food and agriculture systems**
- 2. Ecosystem disruption**
- 3. Trade and travel**

**Explore lessons,
institutions and
inertia**

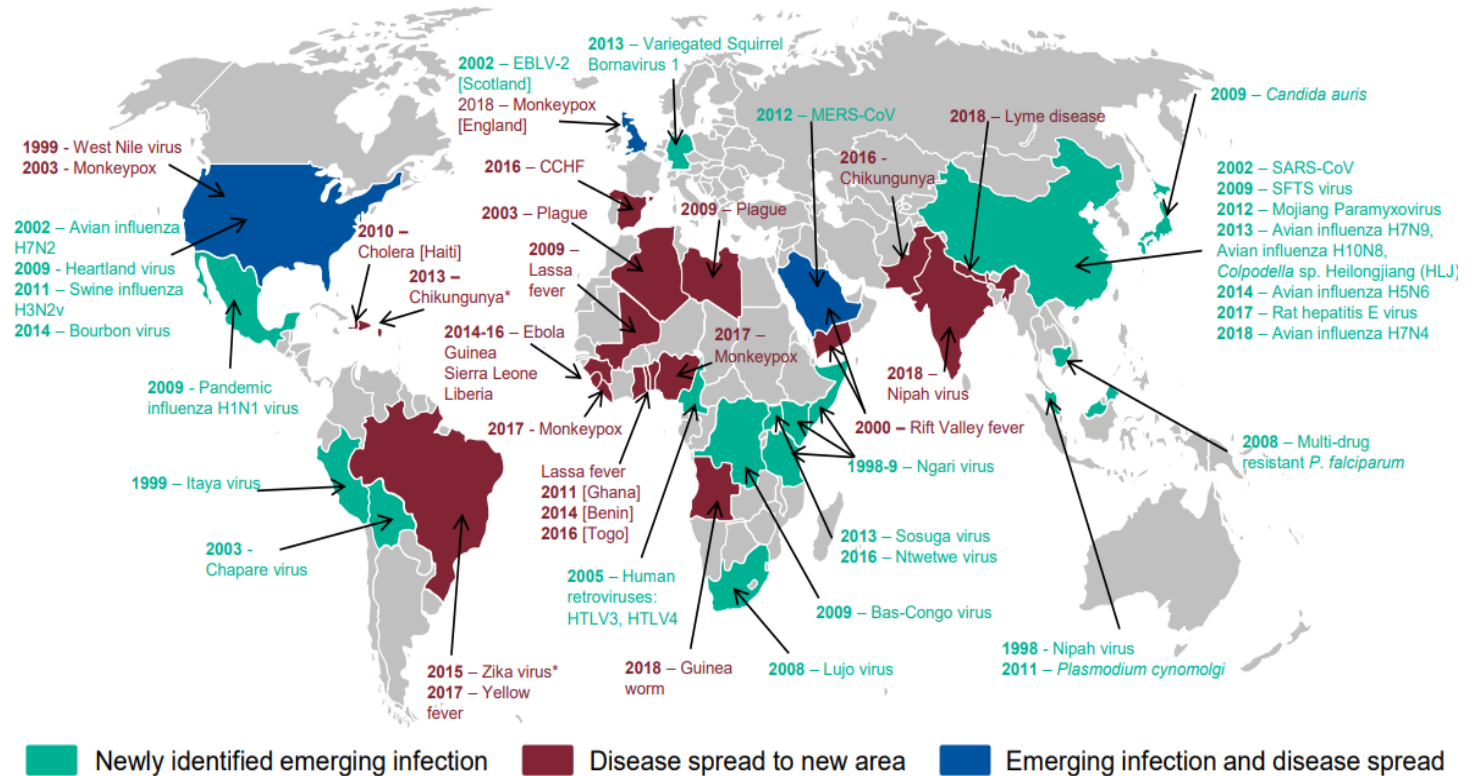
- 1. Key lessons from previous zoonotic disease outbreaks**
- 2. Key organisations tackling the problem**
- 3. The political economy challenges to addressing threats systematically and consistently**

**Identifying the key
evidence /
knowledge gaps**

- Systems, institutions and incentives**
- Surveillance and preparedness**
- Behaviour change and food choices**
- Testing, diagnostics, vaccines and medicines**

The icons in the grid are: a red circle with a diagonal line over a hand (no touch), a 3D model of a coronavirus particle, a bar chart with a green upward arrow (growth), and a hand being sanitized by a blue dispenser (hygiene).

A pandemic like COVID 19 has been repeatedly predicted for over 25 years {Garrett, L., (1994) The Coming Plague: Newly Emerging Diseases in a World out of Balance}



- **“Emergence events” are complex**
- **Events commonly involve a viral “spillover” from wildlife/livestock** {75% of emerging human infections are zoonotic}
- **A “One Health” approach across Ministries and disciplines is needed to mitigate their threat**
- **Many of the tools needed for the early detection or, response to, and management of emerging disease threats already exist but are not utilized optimally**

Impact of zoonotic diseases

Assessment of impact is complicated

Economic factors

Human Health disability-adjusted life years (DALYS)

Livelihood considerations

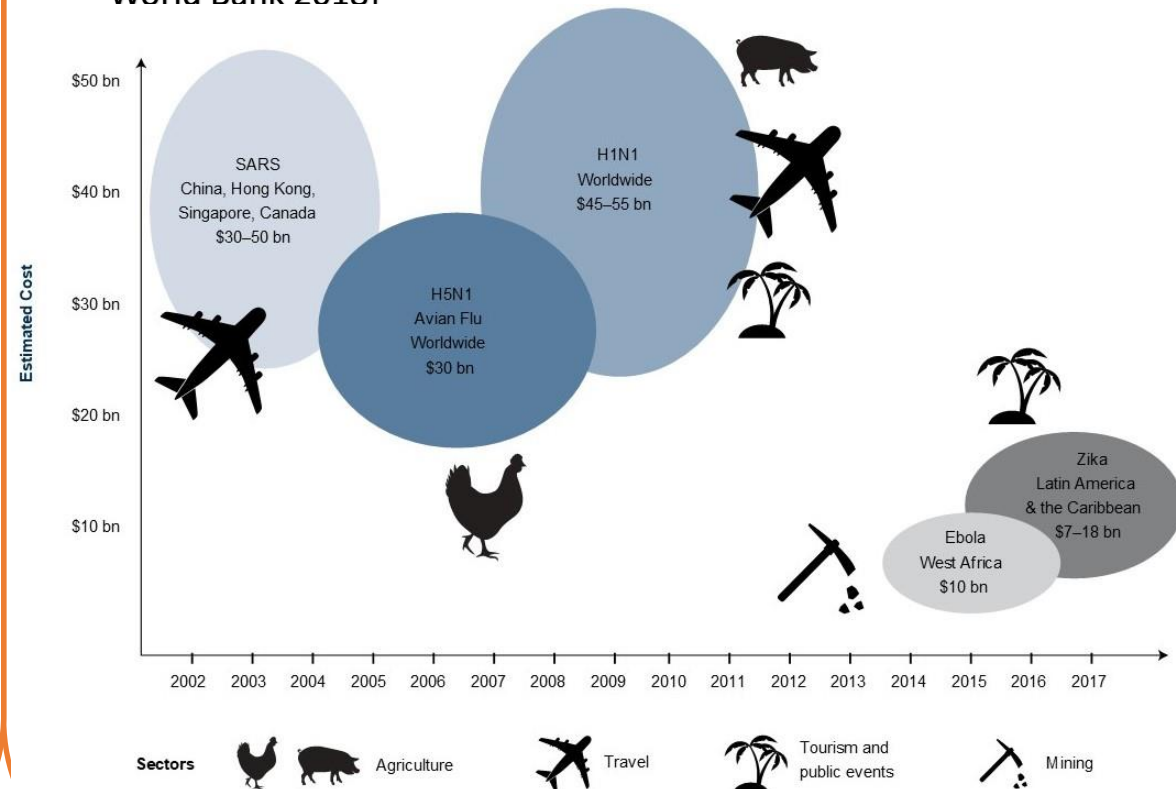
Frequently under reported

When spread across sectors (Environment / Health / Livestock) the burden is difficult to measure

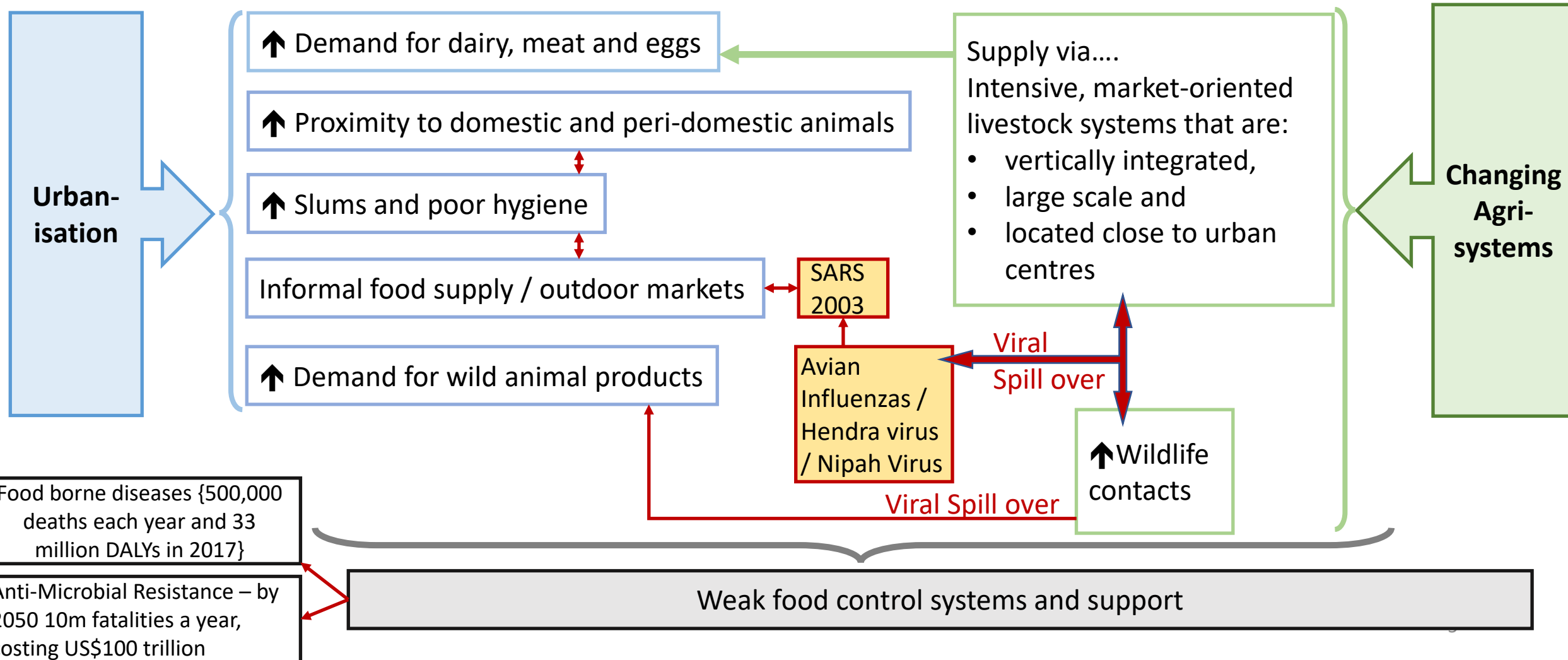
Impact of endemic zoonoses is far higher in developing countries, where zoonoses make up a quarter of all DALYs lost to infectious disease

Impact of pandemics severe in all countries

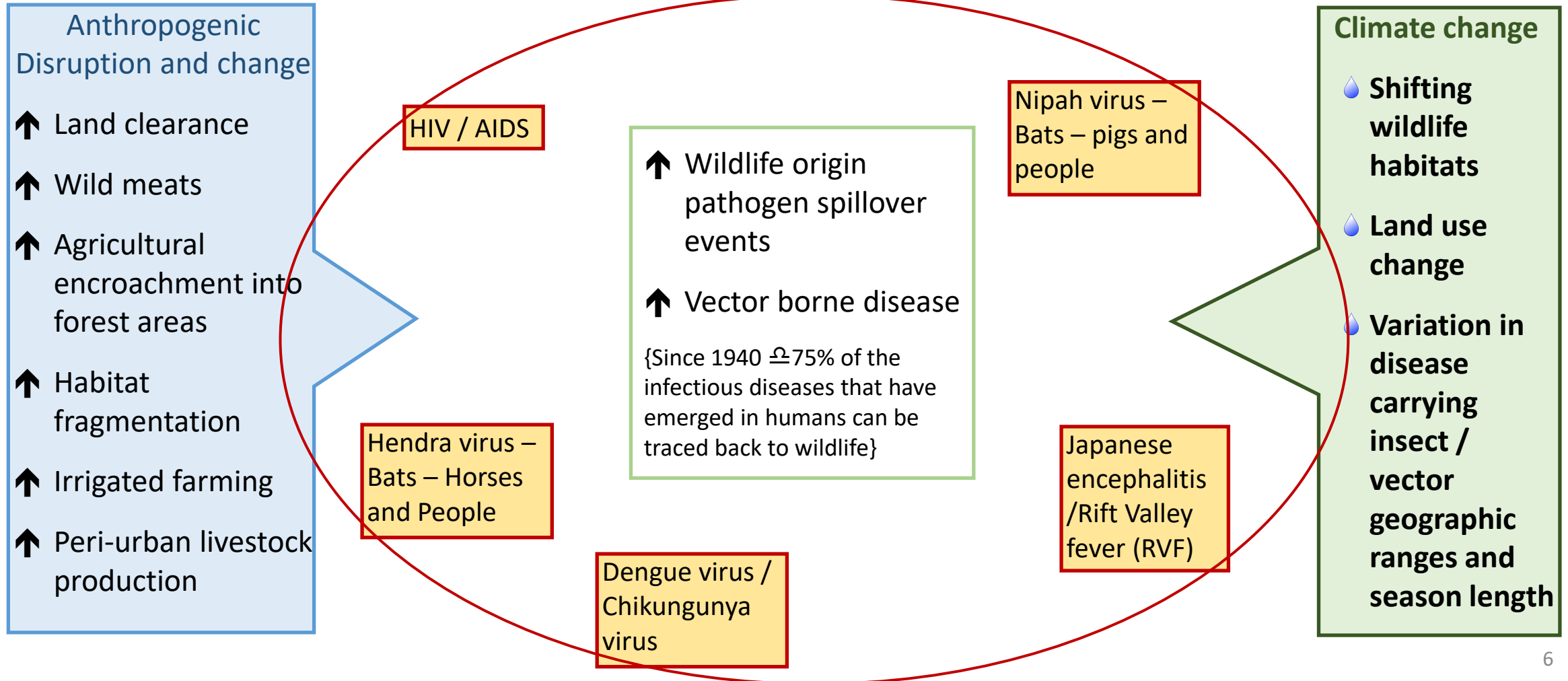
Estimated economic impacts of disease outbreaks and highly-affected sectors) {Source: EcoHealth Alliance & World Bank 2018}



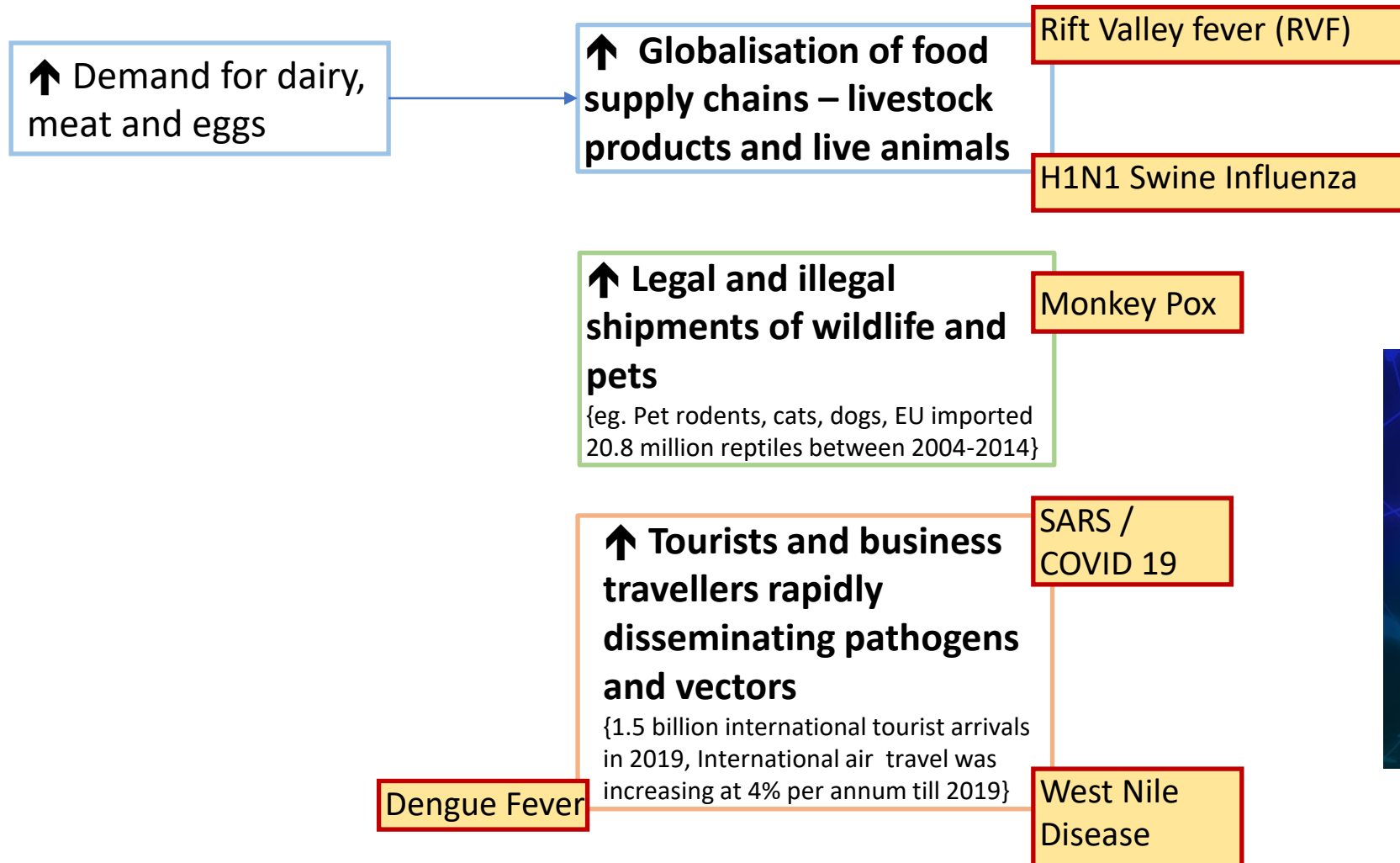
Driver 1 - Disease, food and agriculture systems



Driver 2 - Ecosystem disruption



Driver 3 - Trade and international travel



Key lessons from previous outbreaks

Prevention and control is best achieved with a **One Health approach**

- requires complicated reorganisation of institutions and incentives, new policy and regulations, a common risk analysis and strategy
- Incentives are unequal across sectors

Early detection and response through active surveillance is crucial

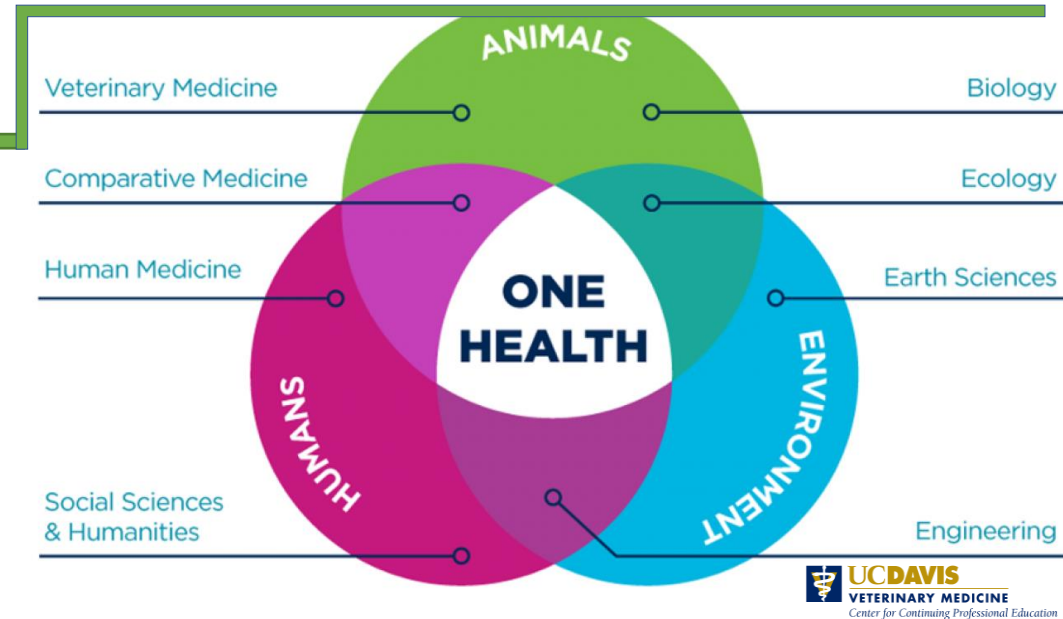
- Costs rise exponentially with delays
- Risk assessment of food chains and spill over points allows targeting of hotspots
- Biosecurity and response protocols are improving
- Tools to assess capacity are increasingly used and accepted

Novel tools and techniques are available and useful

- Horizon scanning
- Genomics
- Penside diagnostic tests
- ICT and digital tools
- AI and Machine learning for managing big data

Leadership at the highest levels

- Robust evidence to inform difficult decisions



Tackling zoonoses at an international level – key players

In response to the increase in international travel and trade, and emergence of international disease threats and other health risks, 196 countries across the globe have agreed to implement **the International Health Regulations developed by WHO** (2005)

The **Global Health Security Agenda (GHSA)** was launched by 29 countries, WHO, FAO and OIE in 2014. The GHSA has subsequently grown to include 67 nations and pursues a multisectoral approach to strengthen global and national capacity to prevent, detect, and respond to human and animal infectious disease threats

WHO, OIE and FAO are key technical partners working through a Tripartite agreement for effective multisectoral, multidisciplinary, and transnational collaboration. Recently, **Tripartite best practice guidance to addressing zoonotic diseases** in countries has been published.

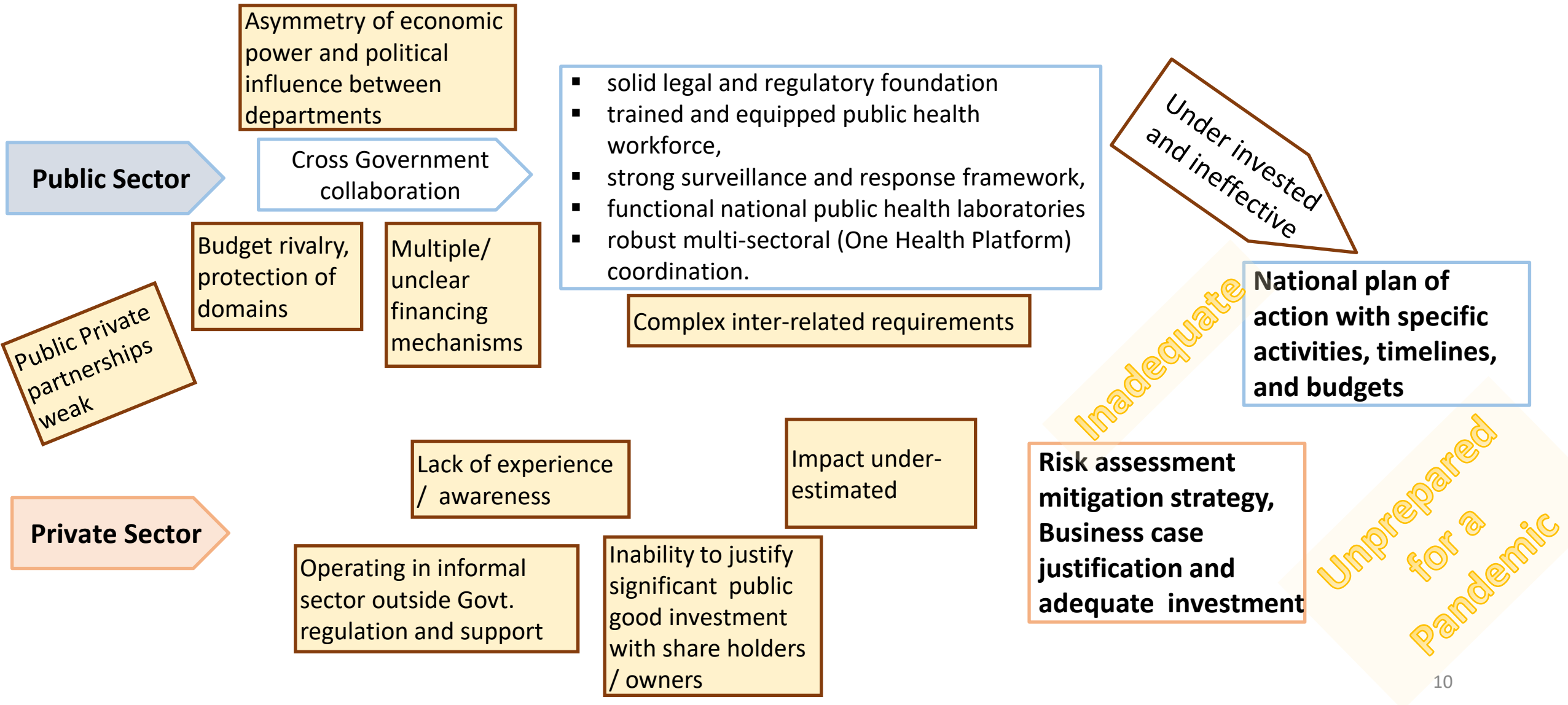
The guide recognises that most countries and regional bodies have inadequate One Health mechanisms in place for administrative and technical collaboration.

Regional bodies have a key role to play. They reflect local realities and concerns and can act to bring member states up to an agreed standard

The Africa Centres for Disease Control and Prevention (CDC), was endorsed by the AU Assembly of Heads of State and launched in 2017 to improve surveillance, emergency response, and prevention of infectious diseases.

- A number of key **civil society organisations** are increasingly involved. Such as:-
 - The Coalition for Epidemic Preparedness Innovations (CEPI)
 - The Convention on International Trade In Endangered Species of Wild Fauna and Flora (CITES),
 - The Convention on Biological Diversity (CBD)

Political and economic issues associated with lack of pandemic preparedness



Ongoing solutions

Systematic and objective assessments of country capabilities

WHO's Joint External Evaluation (JEE)
or the outcome of OIE's Performance
of Veterinary Services (PVS) pathway
analysis

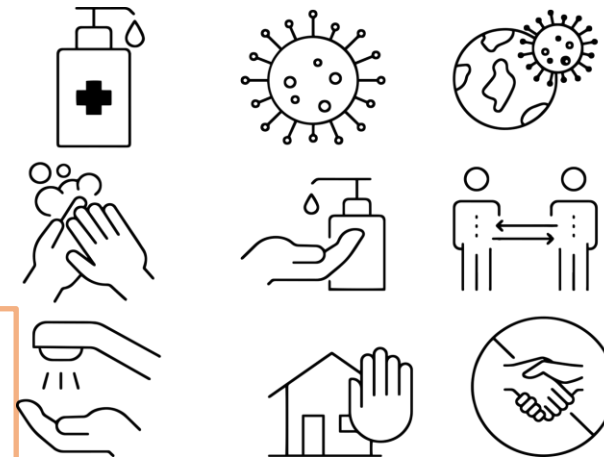
FAO / WHO / OIE Tripartite Zoonoses Guide (TZG)

Operational guidance and tools, models
and templates to build strong systems
and One Health approach

Indices that measure intrinsic
risk, state of preparedness,
and economic vulnerability
linked to investments and
reputational incentives

World Bank **International Working Group on Financing Preparedness (IWG)**

Developing mechanism and incentives to
encourage countries to invest in pandemic
preparedness



Key evidence/knowledge gaps

Systems, institutions and incentives

Surveillance and preparedness

Behaviour change and food choices

Testing, diagnostics, vaccines and medicines

