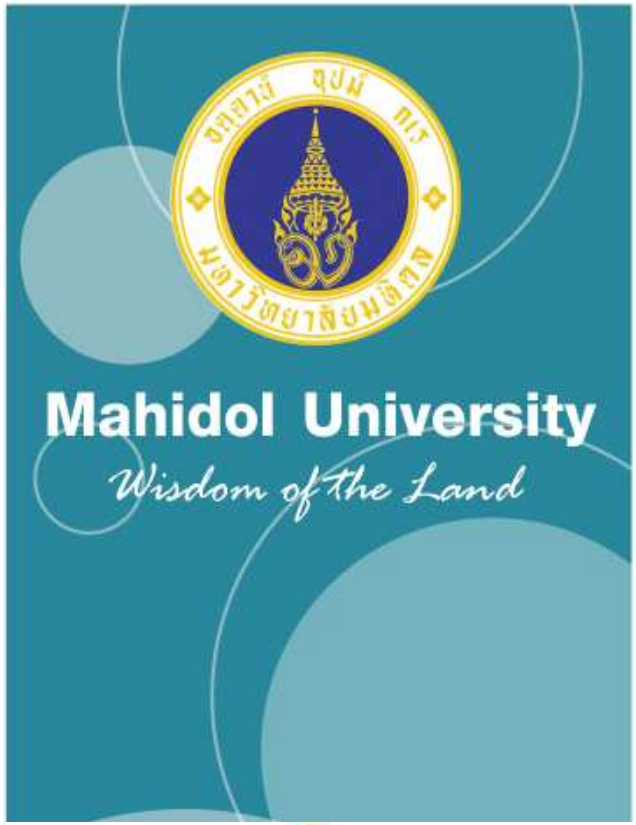

Zoonosis and AEC

Assoc. Prof. Parntep Ratanakorn

Dean, Faculty of Veterinary Science, Mahidol University

Director, FAO-RC-ZWD

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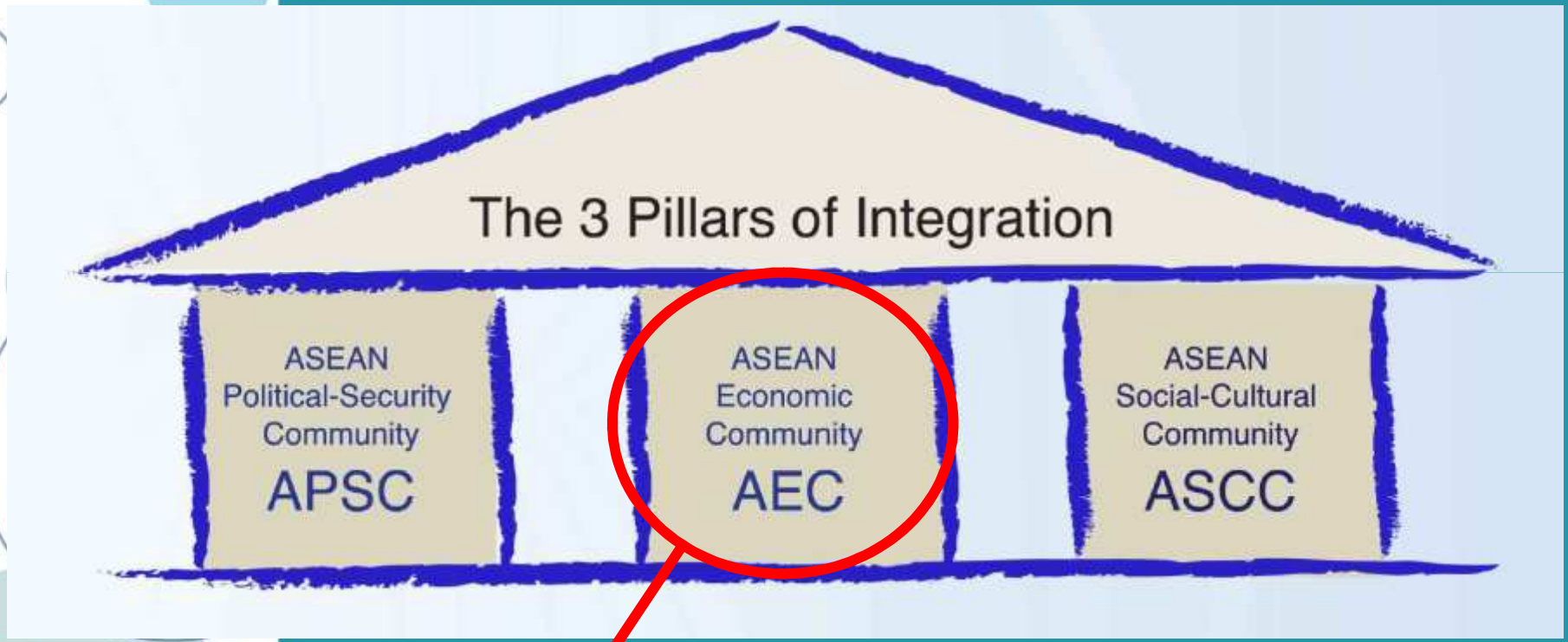
Three pillars of ASEAN

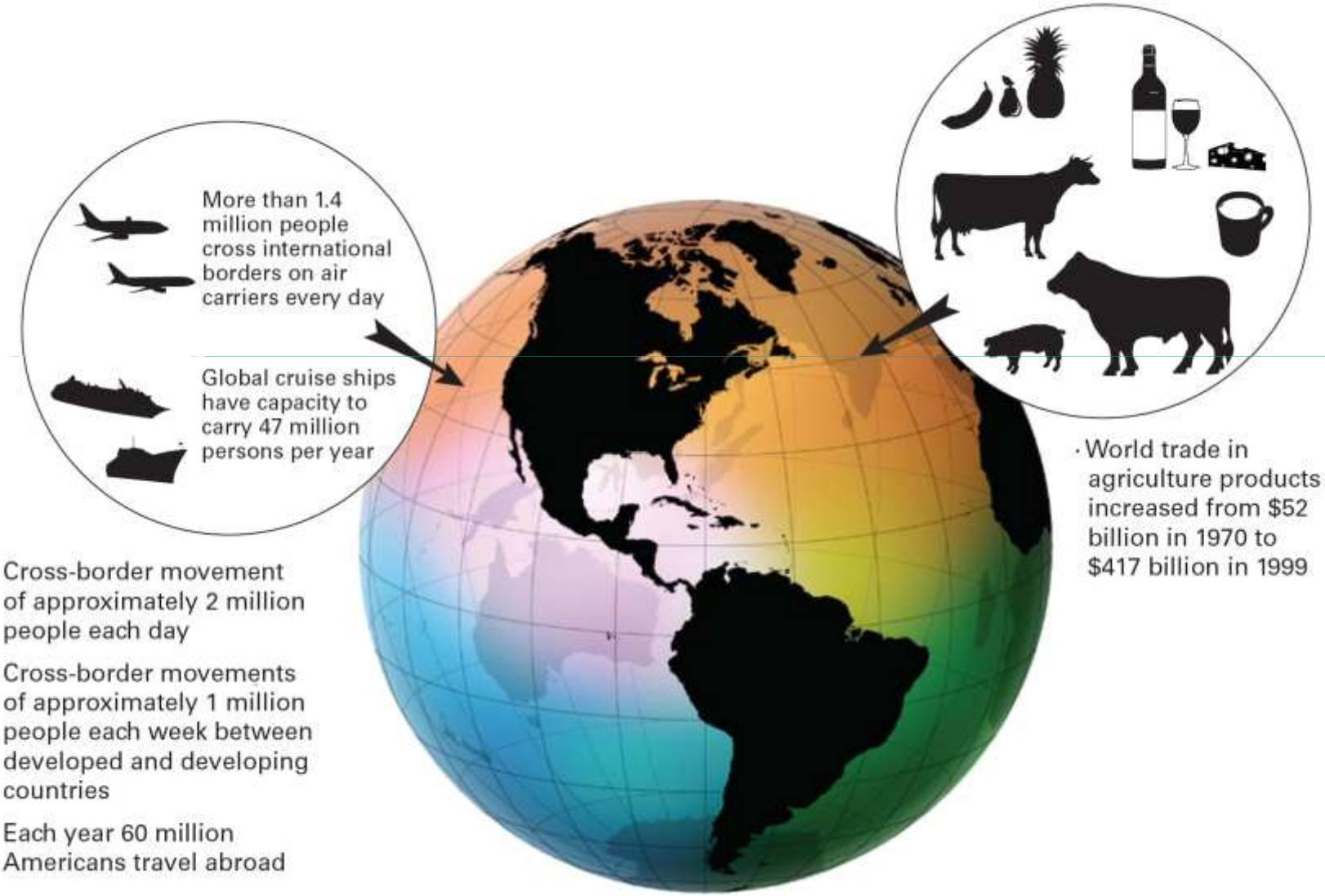
ASEAN: One vision, one identity, one community



Shall be completed in 2015


ASEAN
A
SINGLE MARKET
&
PRODUCTION BASE
MYANMAR
LAOS
VIETNAM
THAILAND
CAMBODIA
PHILIPPINES
MALAYSIA
SINGAP
With FREE MOVEMENT
o Goods
o Services
o Skilled Labor &
o A Freer Flow of Capital
ELIMINATION of All Tariffs in Intra-ASEAN Trade by 2015 through AFTA except for those phased in from the CEPT Sensitive and Highly Sensitive Lists.
ELIMINATION of Nontariff Barriers in Intra-ASEAN Trade by 2015 through enhanced transparency and harmonization.
More movements of humans and animals
More zoonoses?
(ABAC-DNT, 2011)

A World of Movement



- Cross-border movement of approximately 2 million people each day
- Cross-border movements of approximately 1 million people each week between developed and developing countries
- Each year 60 million Americans travel abroad

- World trade in agriculture products increased from $52 billion in 1970 to $417 billion in 1999

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Are we ready for the up coming huge changes?

Bangkok Post The world's window on Thailand

News > Local News

Health plans for foreigners under review

4 | 5 | 0
Like | Tweet | +1

Published: 28 Feb 2013 at 21.01
Online news: Local News

The Ministry of Public Health on
in preparation for the formation

USA TODAY Home | News | Travel | Money | Sports | Life | Tech | We

News » World ▪ War casualties

Poor health care system plagues Myanmar

Posted 10/26/2007 9:06 PM | Comment | Recommend E-mail | Print |

By Margie Mason, AP Medical Writer

MAE SOT, Thailand — They travel for days though checkpoints, across dangerous roads and past Myanmar's bribe-hungry soldiers to make it to the Thai border. They're not refugees fleeing the junta -- they simply want to see a doctor.

Myanmar has one of the world's worst health care systems, with tens of thousands dying each year from malaria, tuberculosis, AIDS, dysentery, diarrhea and a litany of other illnesses. While there are hospitals in the impoverished

ZD

ZEID worldwide

This map shows locations of zoonotic emerging disease events between 2004 and 2011.

(Department for International Development, UK, 2012)

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ZEID worldwide

Prevalence (%) of important zoonoses by region

	North Africa, Near East	East Africa	Southern Africa	West Africa	South Asia	SE Asia	All developing
Brucellosis*	13%	8%	14%	16%	16%	2%	12%
Tuberculosis^	9	8	5	7	17	0.2	7
Leptospirosis*	30	24	17	28	27	24	24
Q fever*	19	11	4	13	19	1	19
Cysticercosis^	Few pigs	12	23	16	14	12	14
Trypanosomosis^	Not present	9	12	10	N/A	N/A	10
Food-borne disease	25	27	21	30	18	25	25
Overall	**15**	**10**	**16**	**15**	**25**	**22**	**16**
Human	15	15	11	10	19	11	16
Livestock	15	10	16	16	17	18	15

*based mainly on seroprevalence, indicates current or recent infections (last 1-2 years)

^ based on parasitological tests, indicates current infections

The 2nd place after South Asia in overall prevalence!

(Department for International Development, UK, 2012)

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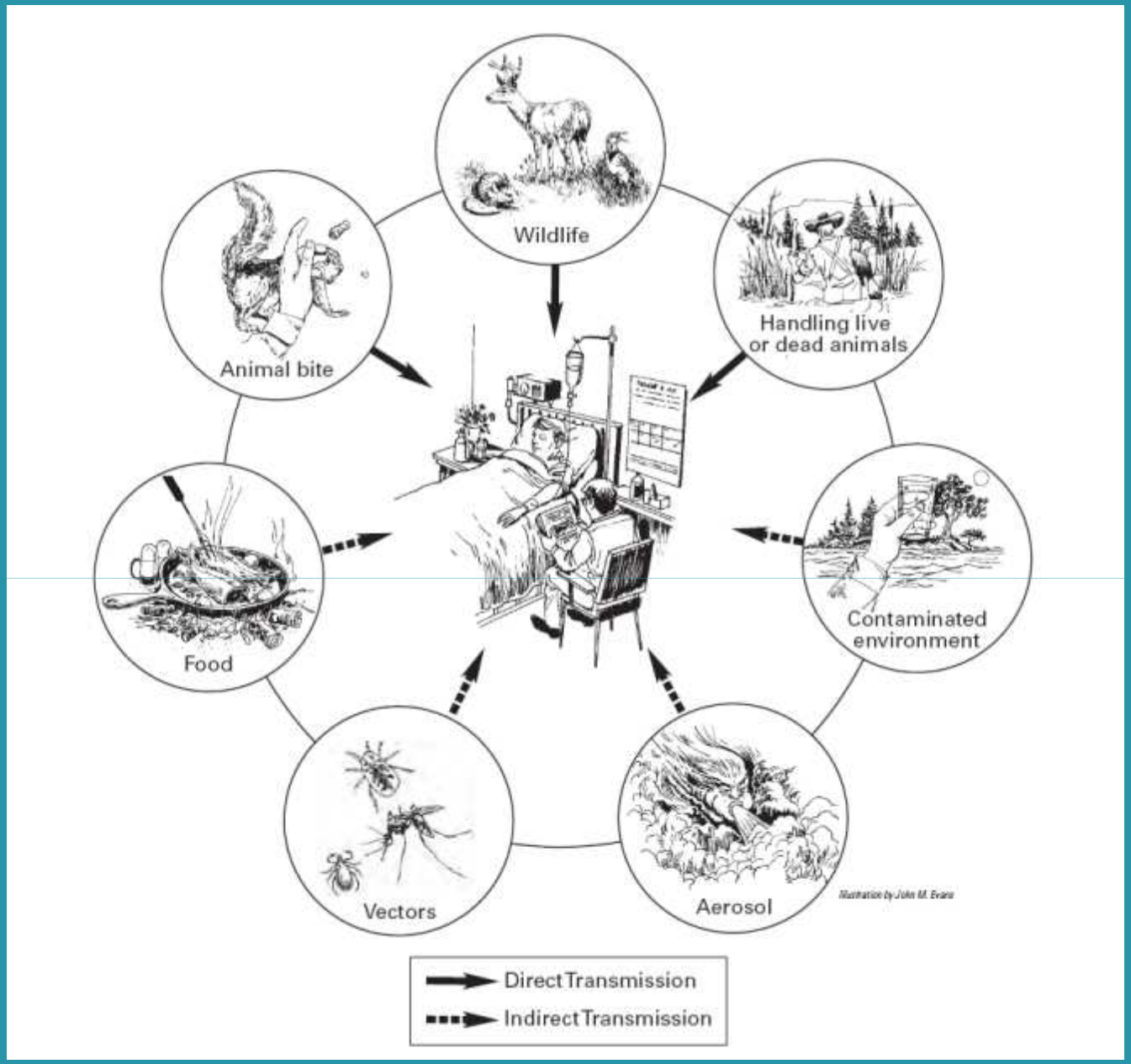
ZD



Common routes for potential transmission of zoonoses

ZD

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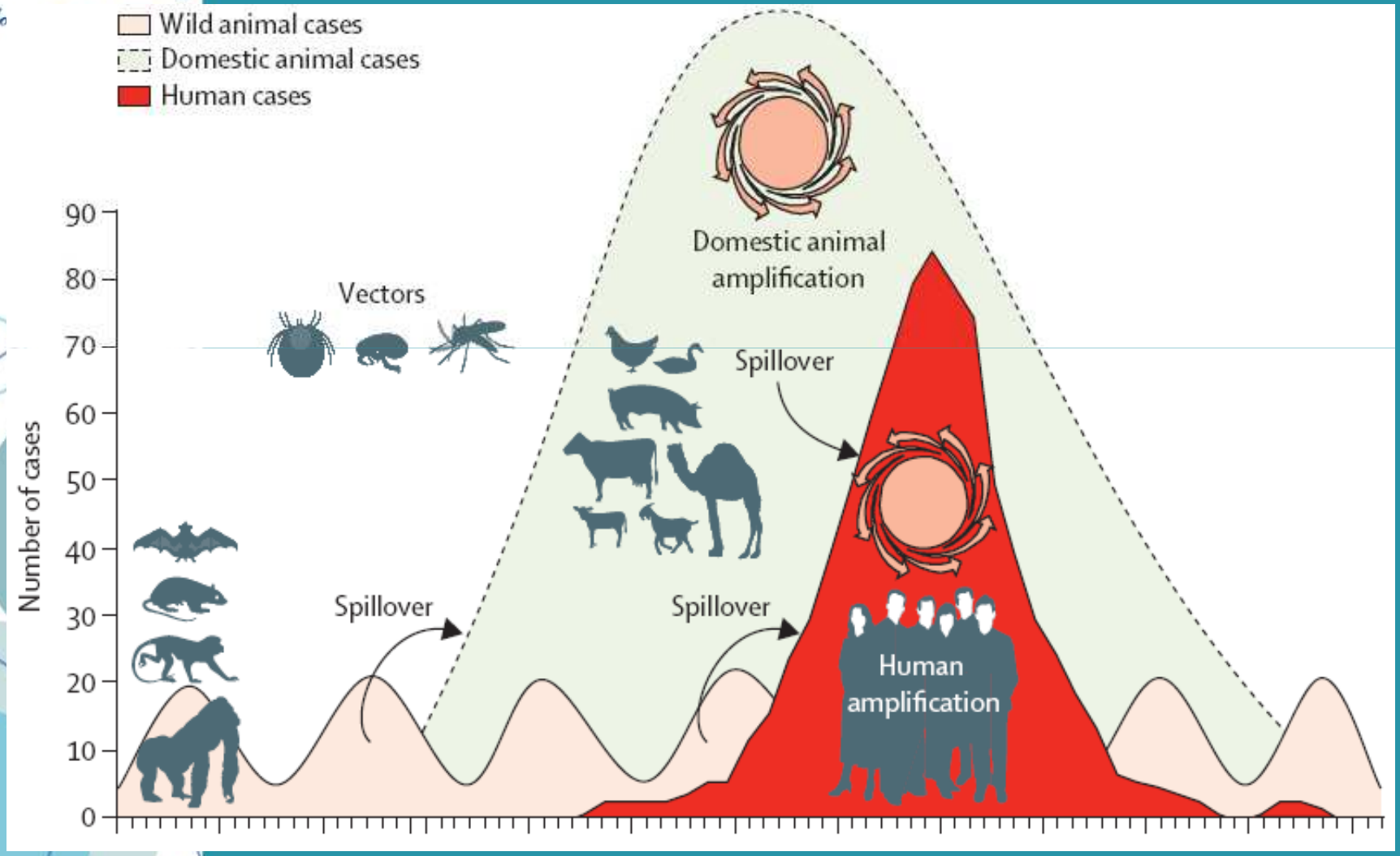
Wisdo

Zoonotic diseases spill over



(Karesh et al., 2012)

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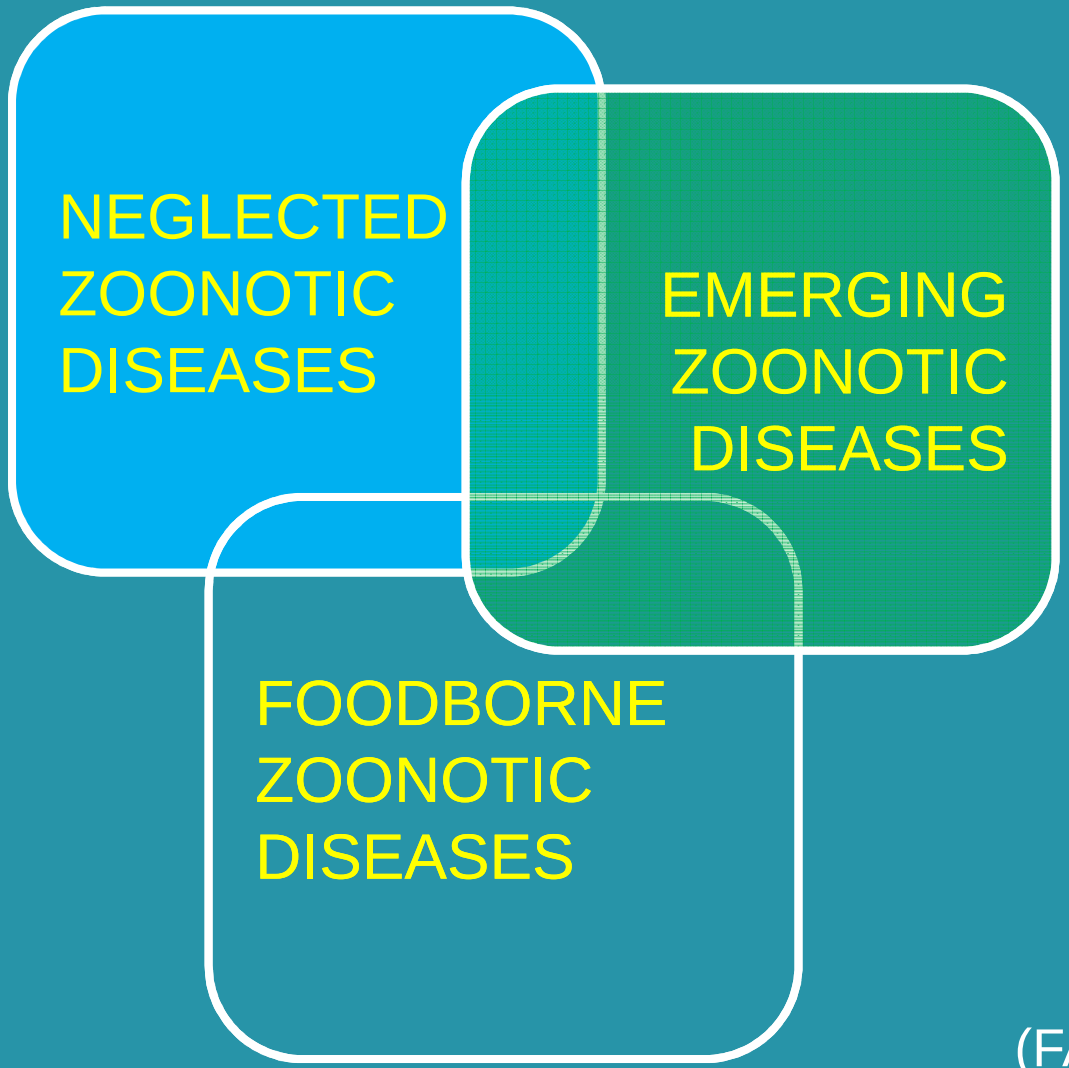
FAO approach to zoonotic diseases



(FAO, 2010)

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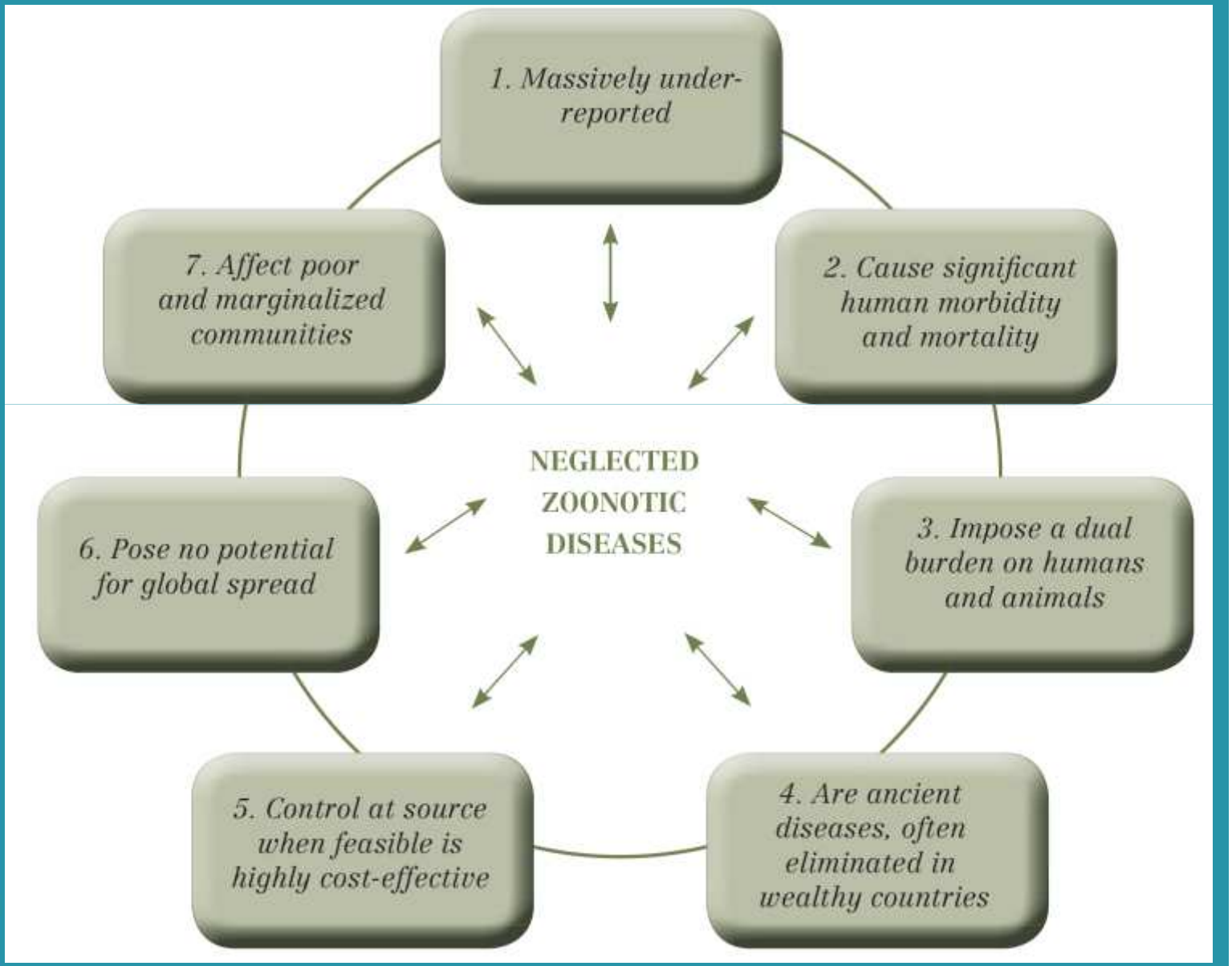
Neglected Zoonotic diseases (NZD)



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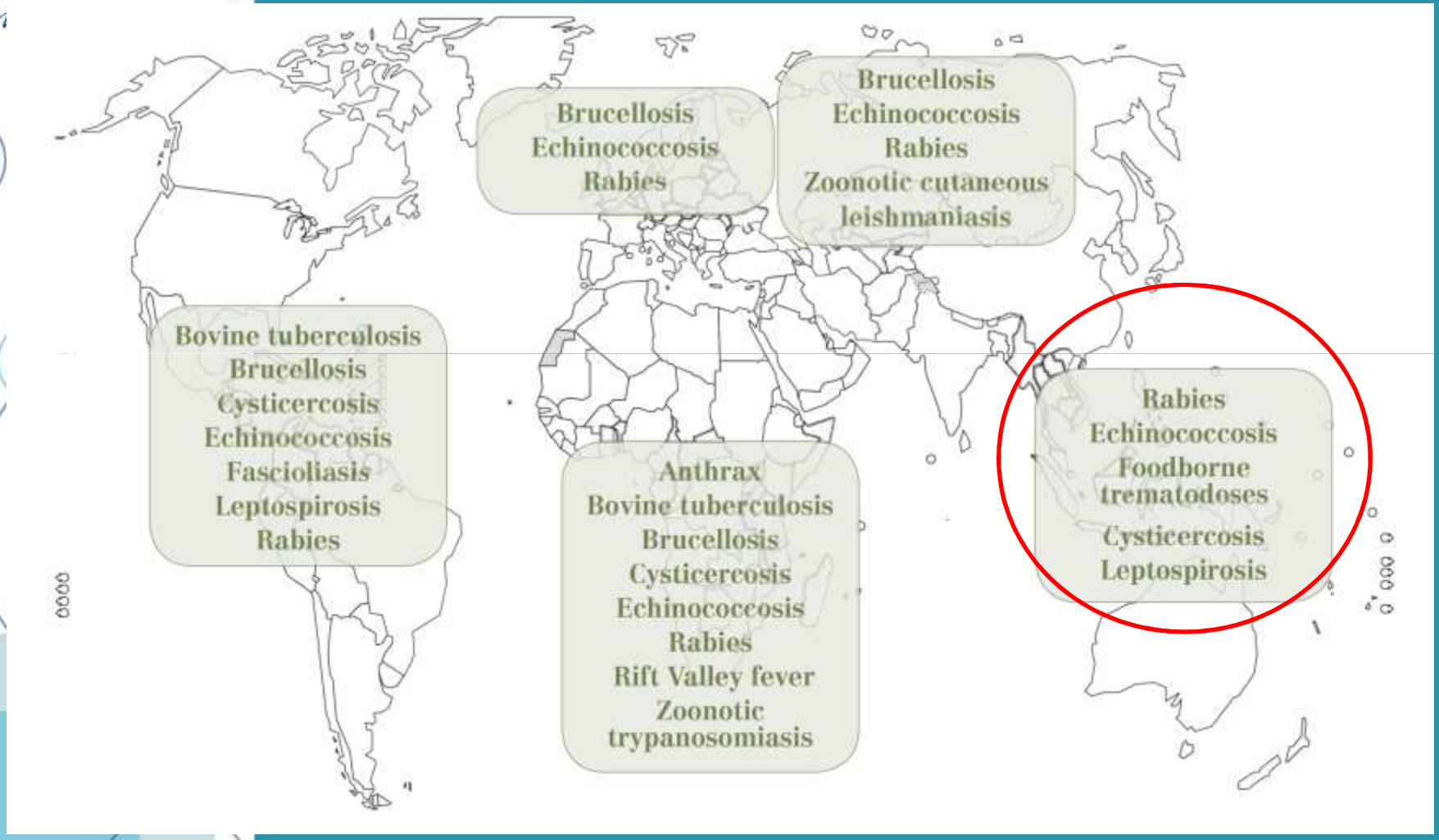
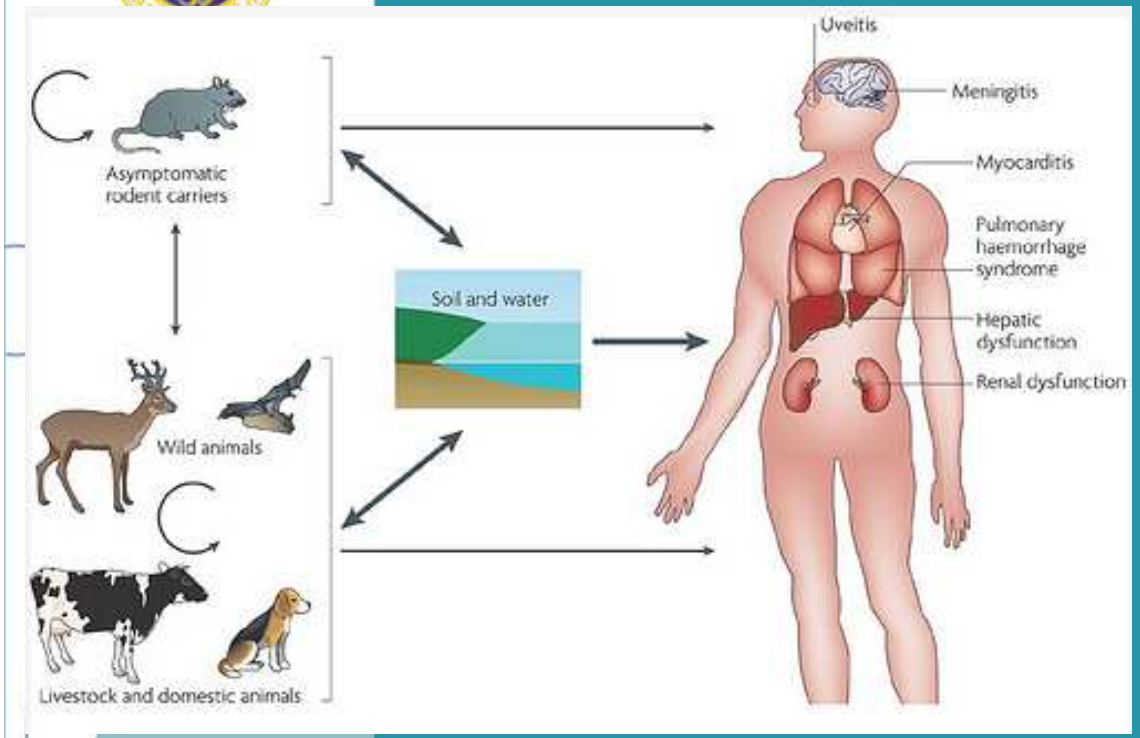
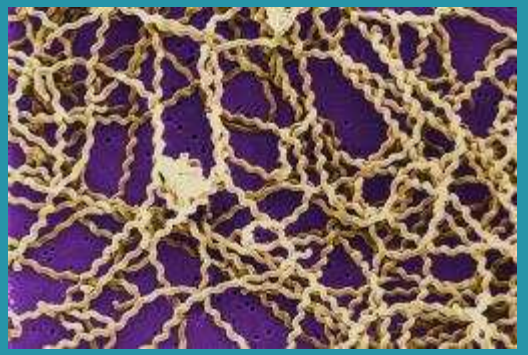
Geographic distribution of NZD



Leptosirosis

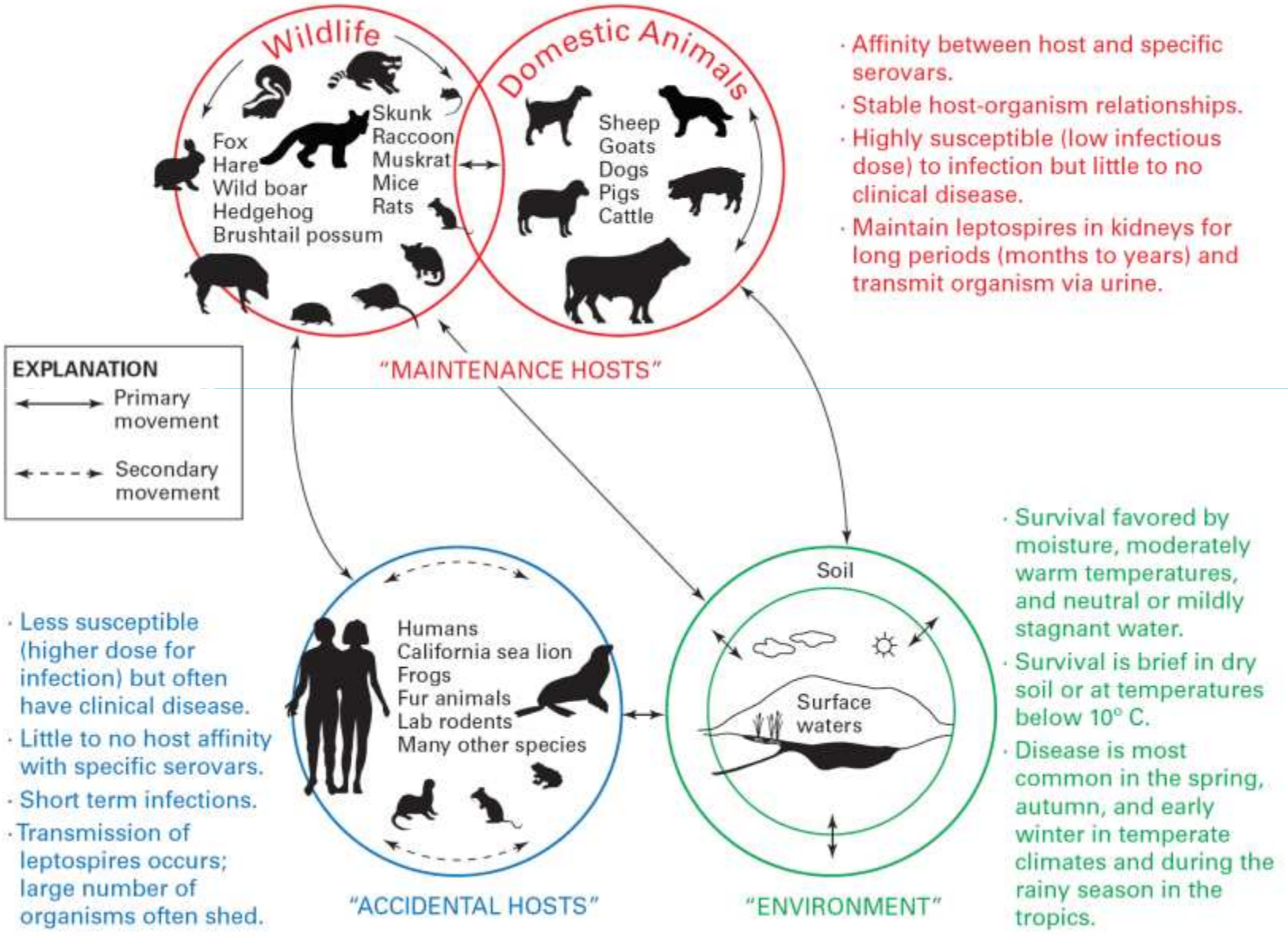
NZD



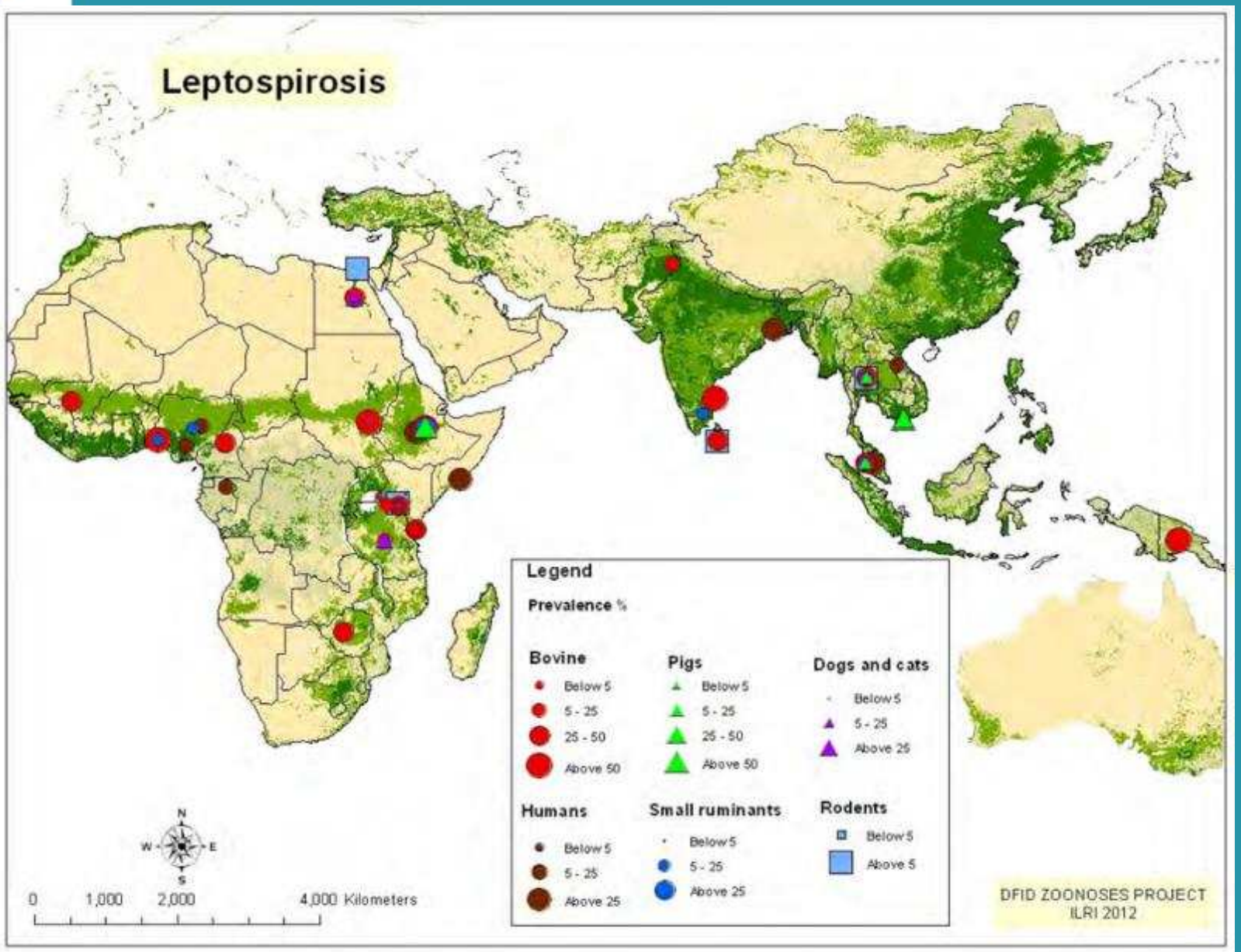


Leptosirosis

NZD



Leptosirosis



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Leptosirosis

NZD

World Health Organization
Regional Office for South-East Asia

Leptospirosis

Leptospirosis outbreaks often occur after floods

Leptospirosis is an emerging zoonotic disease of public health importance in countries of South-East Asia (SEA) Region. However, it is still widely overlooked and underreported. One of the possible reasons for this is that the clinical features are non-specific, with signs and symptoms similar to those seen in many other infectious diseases. Furthermore, confirmation of leptospirosis requires laboratory tests that are not always available and rapid diagnostic tests are not reliable.

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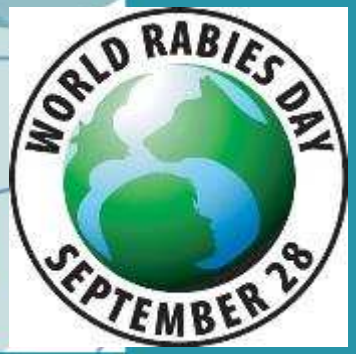
Rabies



Rabies

How it spreads

ANIMAL BITE: The farther away from brain, the longer virus takes to spread

VIRUS: Spreads through central nervous system

Common carriers of rabies

Infected animals: Show no fear for humans; act very agitated

Bat | Fox | Cat | Skunk

Dog: Another common rabies source

Symptoms in humans

- Fever, depression
- Agitation
- Painful spasms followed by excessive saliva
- Death within a week without vacine

Treatment: Hospitalization, immune globulin injections, anti-rabies vaccine

Foaming at mouth after drinking: Produced by spasms in throat

SOURCE: The World Book Medical Encyclopedia

KRT

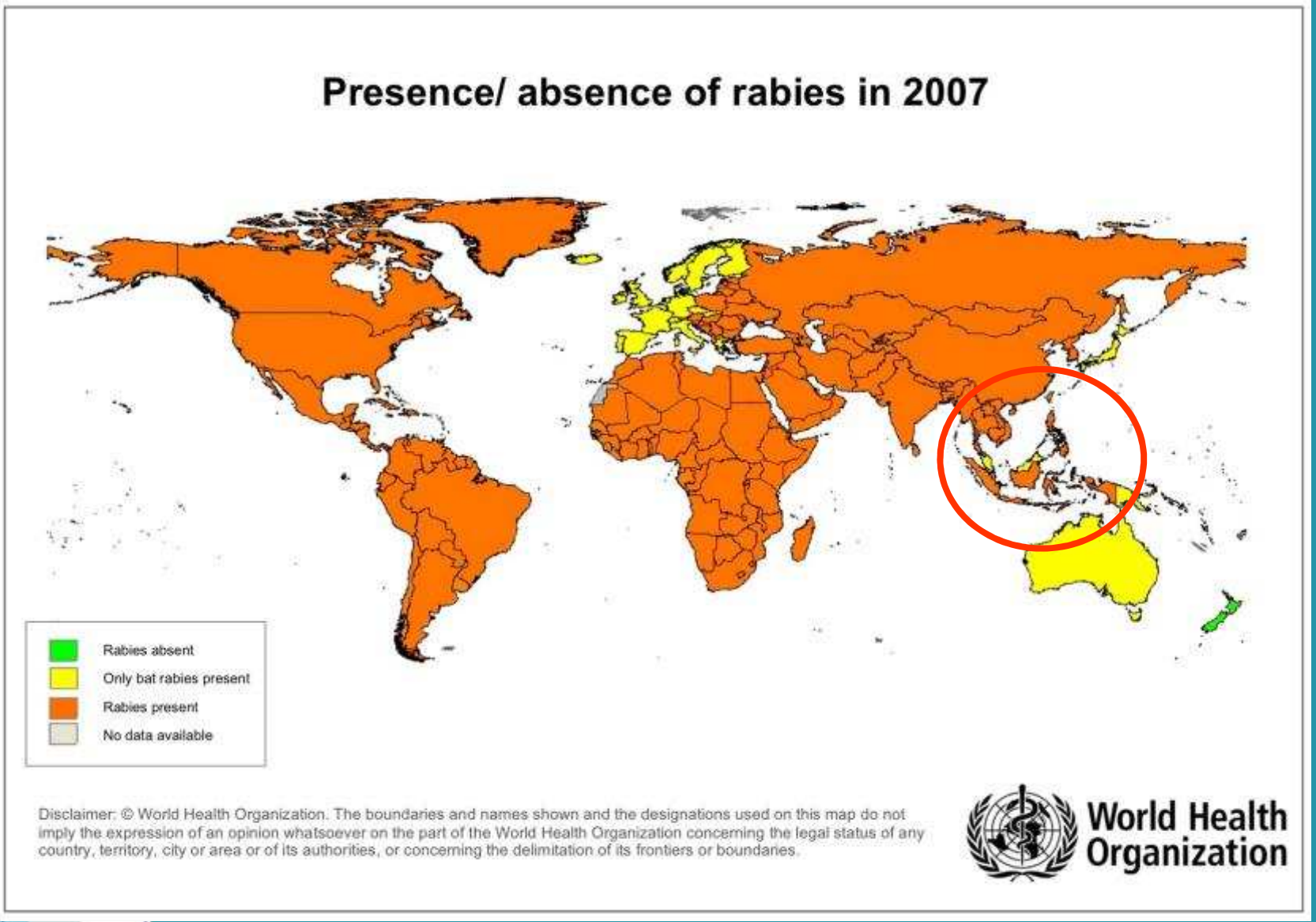
Rabies

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: WHO Rabnet/CDC
Map Production: Public Health Information and Geographic Information Systems (GIS)
World Health Organization

World Health Organization

Rabies


Presence/ absence of rabies in 2007
Rabies absent
Only bat rabies present
Rabies present
No data available
Disclaimer: © World Health Organization. The boundaries and names shown and the designations used on this map do not imply the expression of an opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.
World Health Organization

NZD

Rabies

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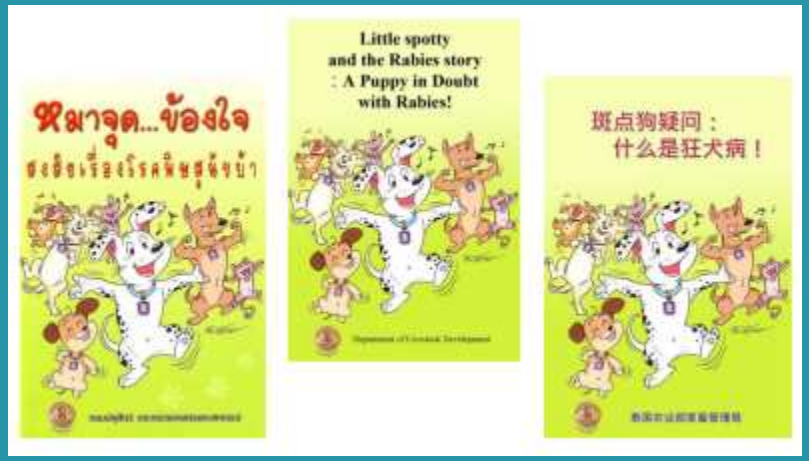
Thailand
THE NATION
www.nationmultimedia.com

Home » Search » Thailand rabies-free by 2020: Jurin

Thailand rabies-free by 2020: Jurin

The Nation January 27, 2011 12:00 am

Public Health Minister Jurin Laksanawisit believes Thailand can be free of rabies by the year 2020, noting that at least 36 Thai provinces have had no rabies for two consecutive years.



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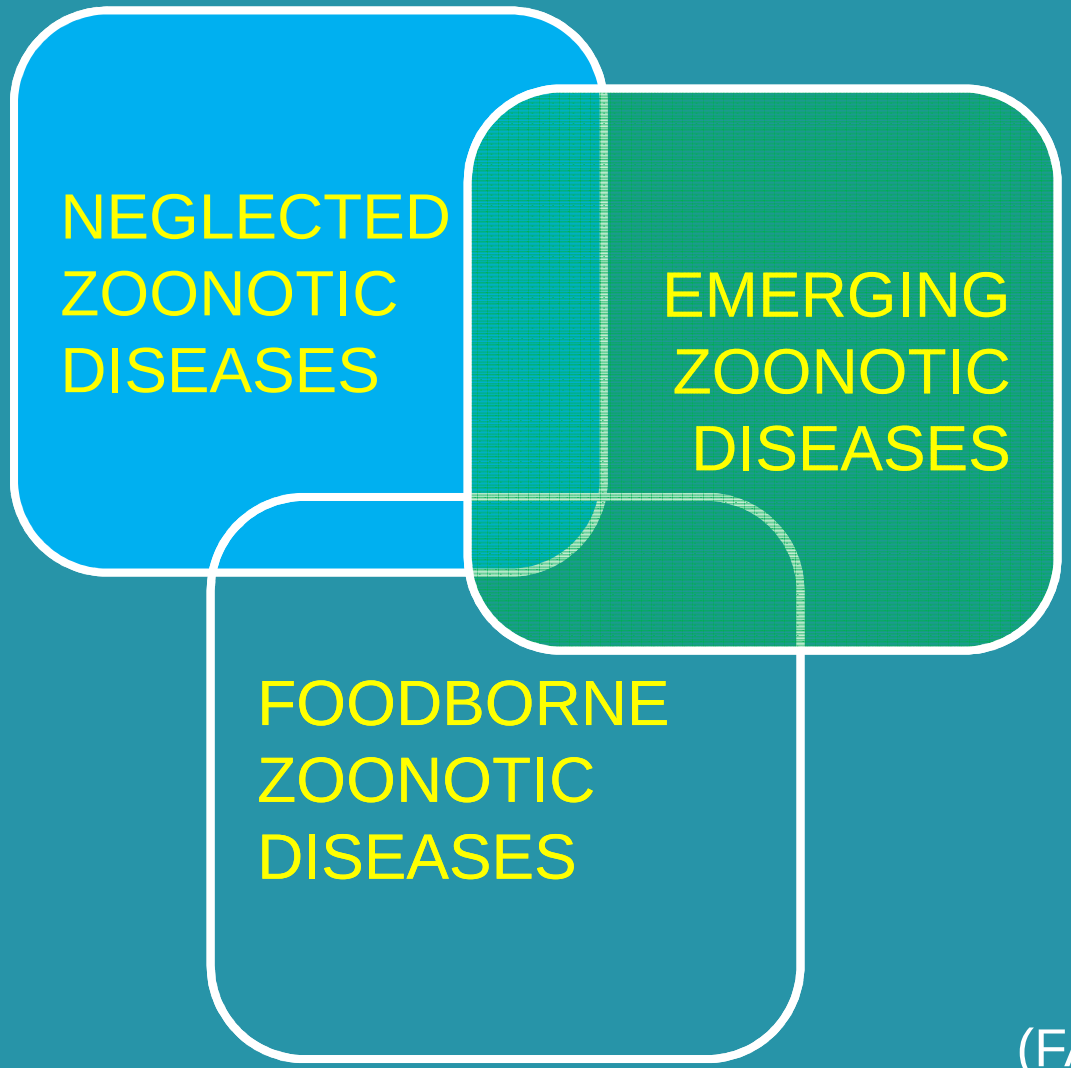
FAO approach to zoonotic diseases



(FAO, 2010)

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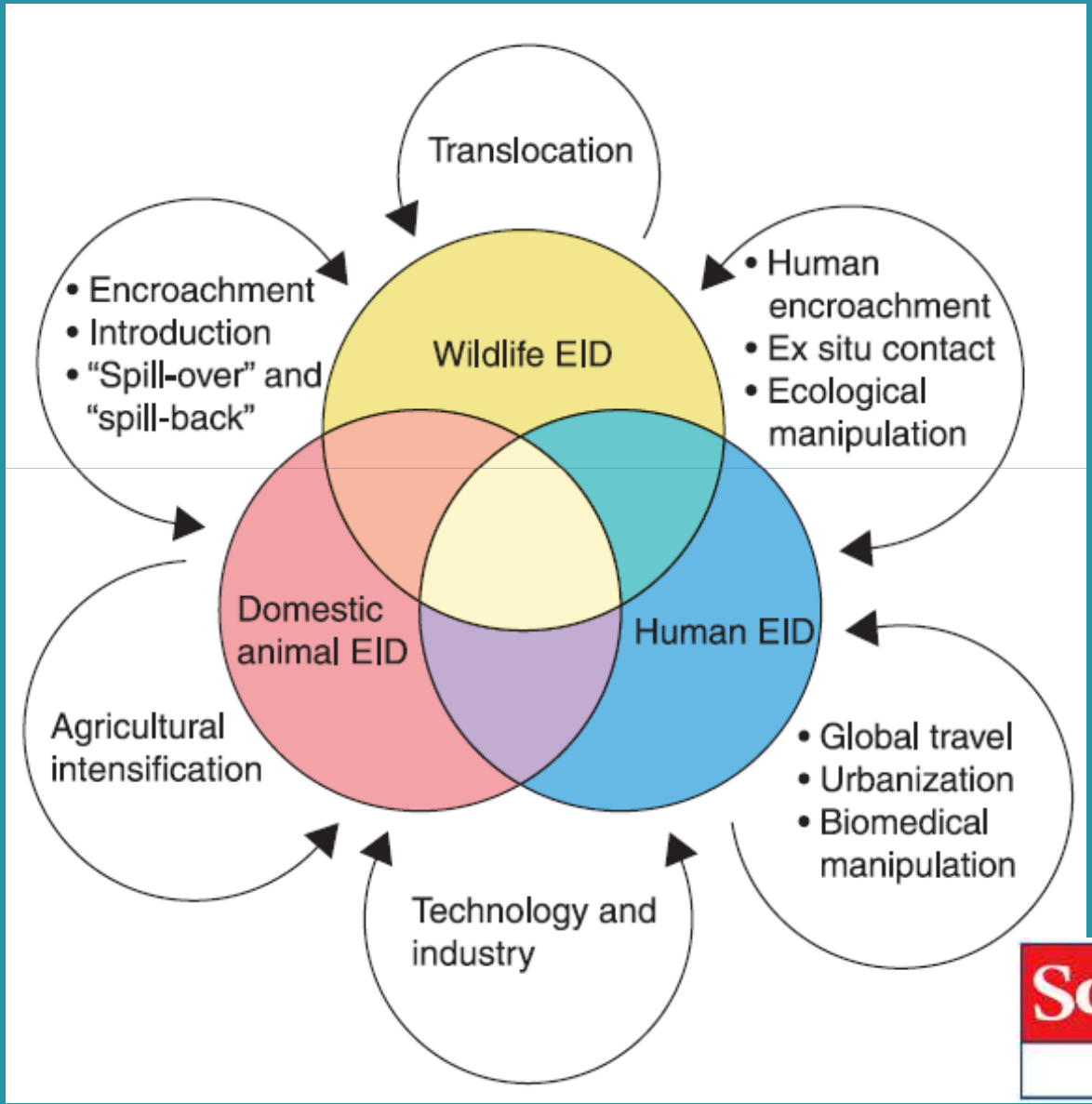
Emerging Zoonotic diseases (EZD)



Science
AAAS

EZD

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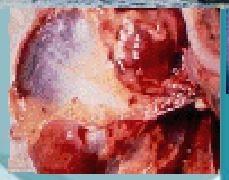
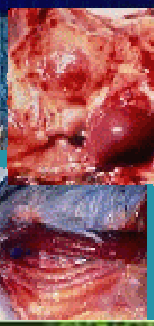
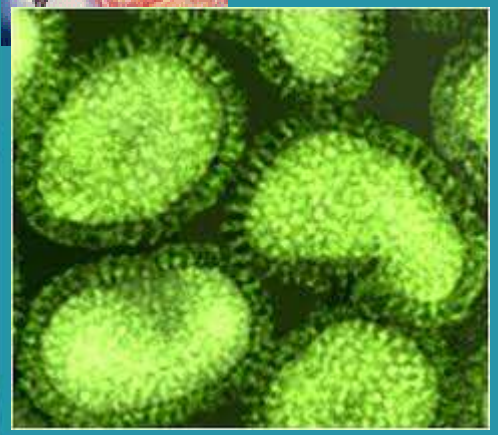
Avian Influenza



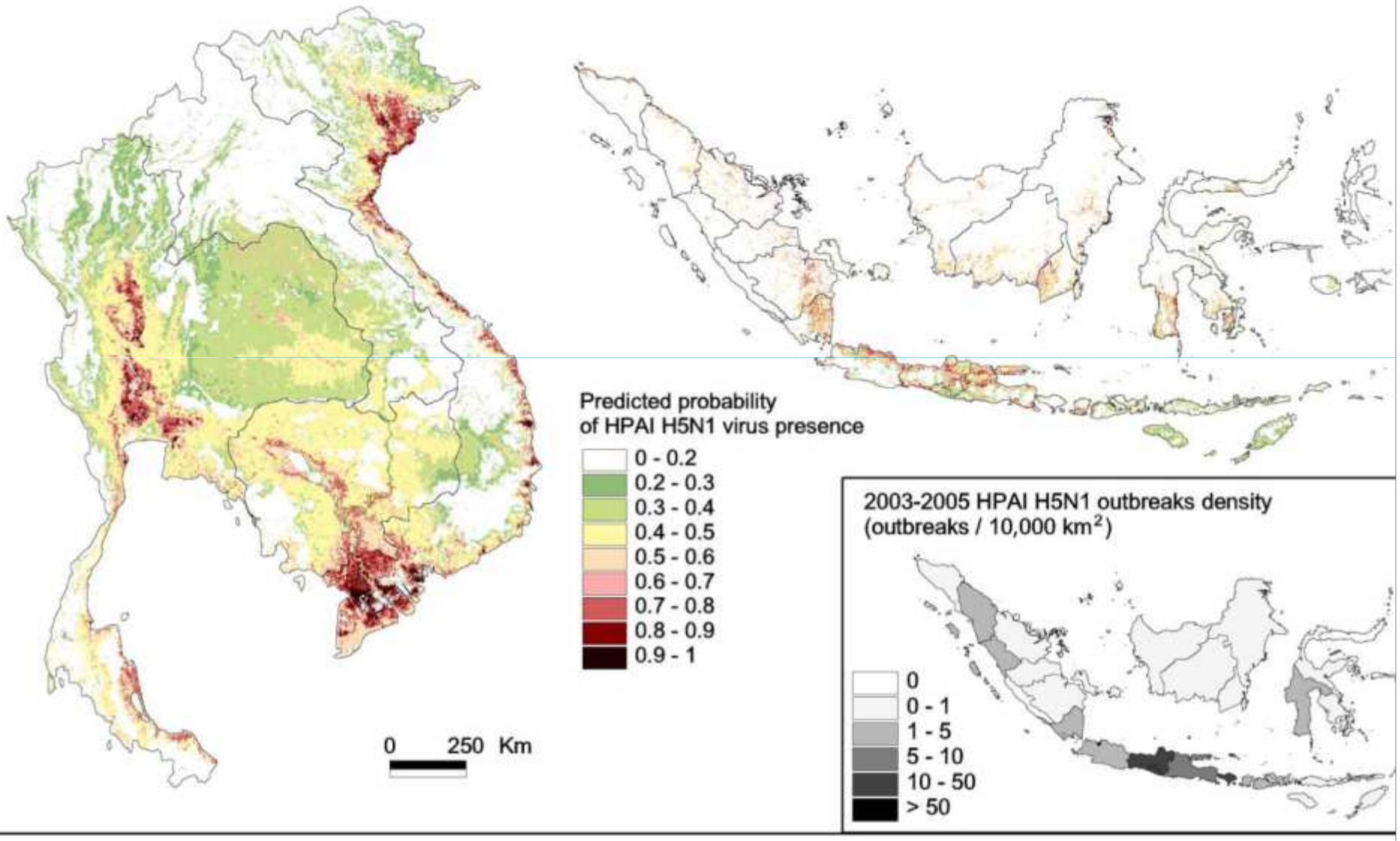




AVIAN INFLUENZA
A GLOBAL PROBLEM

EZD

HPAI H5N1 Risk map



(Gilbert et al., 2008)

Update on H5N1 situation

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Location	Virus Type	Date		Link
Bangladesh	H5N1	2013	05/02/13	Follow-up report No. 41
Bhutan	H5N1	2013	11/01/13	Follow-up report No. 8
		2013	08/02/13	Follow-up report No. 9
Cambodia	H5N1	2013	27/01/13	Immediate notification
		2013	30/01/13	Follow-up report No. 1
		2013	22/02/13	Follow-up report No. 2
		2013	12/03/13	Follow-up report No. 3
		2013	15/03/13	Final report
Hong Kong (SAR-PRC)	H5N1	2013	29/01/13	Immediate notification (final report)
India	H5N1	2013	13/02/13	Final report
		2013	09/03/13	Immediate notification
Mexico	H7N3	2013	08/01/13	Immediate notification
		2013	16/01/13	Follow-up report No. 1
		2013	18/02/13	Follow-up report No. 2
		2013	28/02/13	Follow-up report No. 3
Nepal	H5N1	2013	06/01/13	Follow-up report No. 3
		2013	18/01/13	Follow-up report No. 4
		2013	21/01/13	Follow-up report No. 5
		2013	15/02/13	Follow-up report No. 6

Last update: 15/03/2013 (ma)

(OIE, 2013)

EZD

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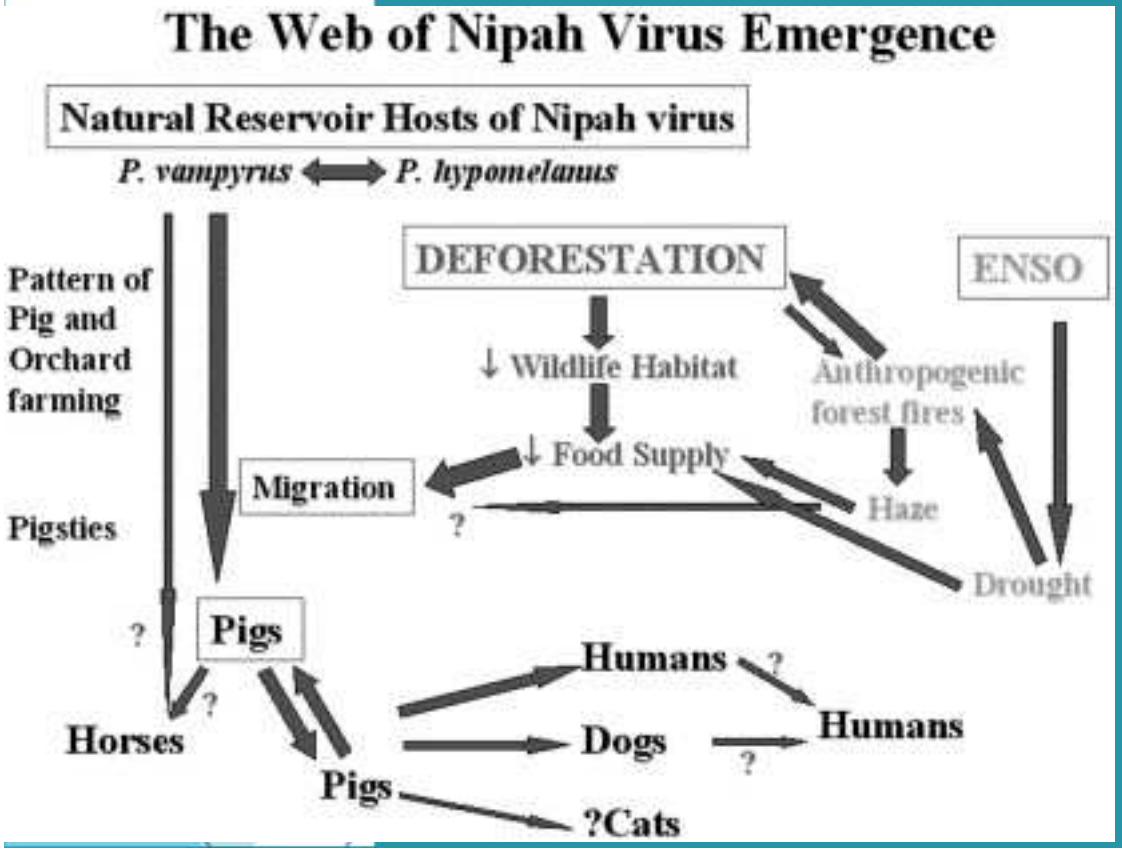
Nipah Virus

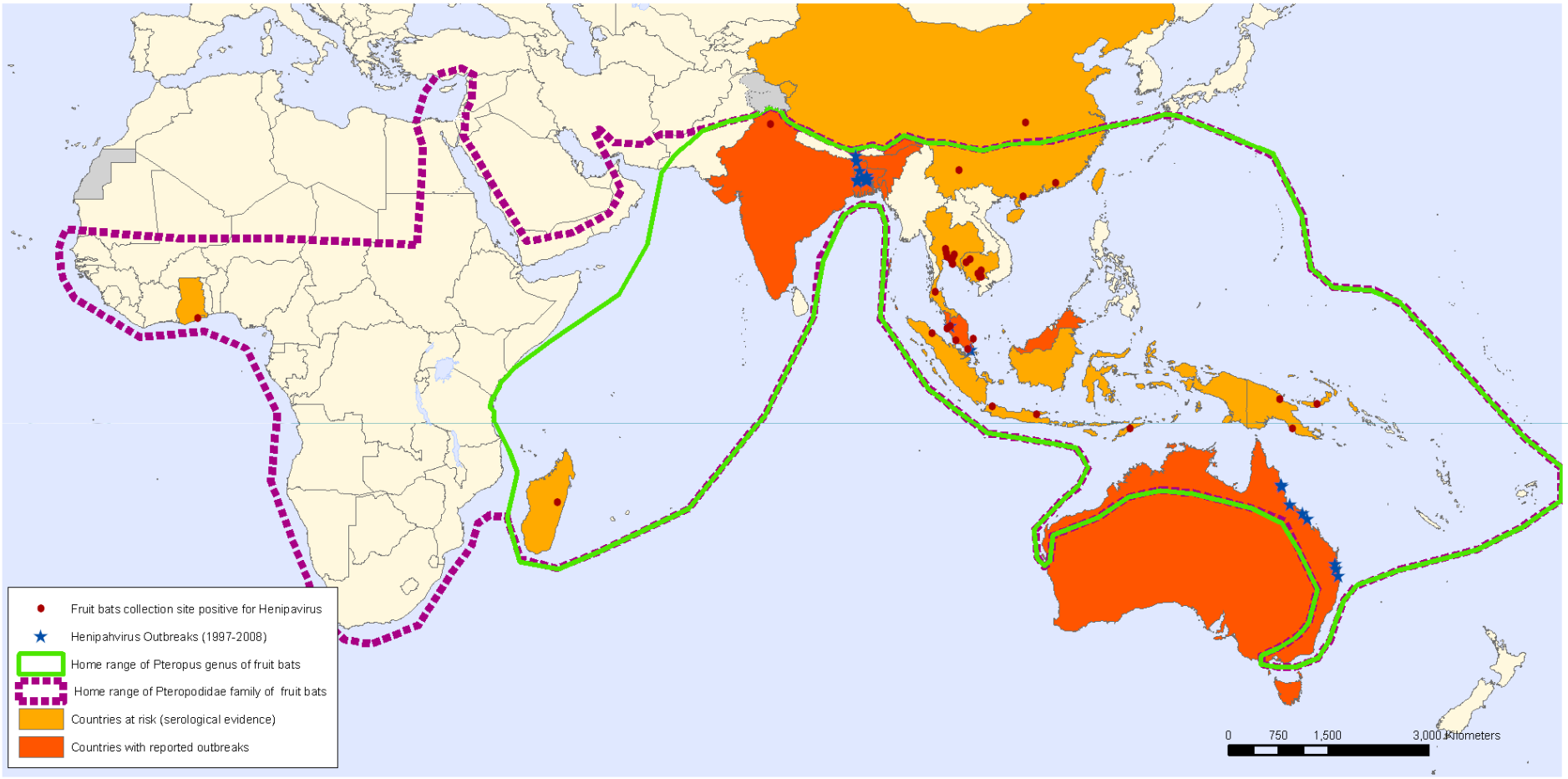
- Nipah virus was first emerged in Malaysia in1999.
  - Malaysian Strain
    - Bat-Pig-Human Transmission
  - Bangladesh Strain
    - Direct Bat-to-Human Trans.



(Chau, 2003)

Geographic distribution of Henipavirus outbreaks and fruit bats of Pteropodidae Family

EZD



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Data Source: Global Alert and Response Department
World Health Organization
Map Production: Public Health Information
and Geographic Information Systems (GIS)
World Health Organization

World Health Organization

EZD

Nipah Virus

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JOURNAL OF
APPLIED ANIMAL SCIENCE
ISSN 1906-2257 VOL.4 NO.3 SEPTEMBER-DECEMBER 2011

Research Articles

The distribution of flying fox (*Pteropus* spp.) in the central region of Thailand

Poonyapat Sedwisai*, Tanasak Changbunjong, Tatiyanuch Chamsai, Plern Yongyuttawichai, Nareerat Sangkachai, Thekhawet Weluwanarak, Seni Ngamloephochit, Anuwat Wiratsudakul and Parntep Ratanakorn

The Monitoring and Surveillance Center for Zoonotic Diseases in Wildlife and Exotic Animals, Faculty of Veterinary Science, Mahidol University, Salaya, Nakorn Pathom 73170, Thailand

*Corresponding author, E-mail address: vspoonyapat@mahidol.ac.th

MoZWE activity on flying foxes

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EZD

Ebola Reston virus

- In October 2008, Ebola Reston virus (REBOV) infection was confirmed for the first time in pigs in the Philippines.
- It was first discovered in imported monkeys from the Philippines in primate facilities in the US.
- The virus has not yet detected in bats, but bats are known as reservoir of other filoviruses.

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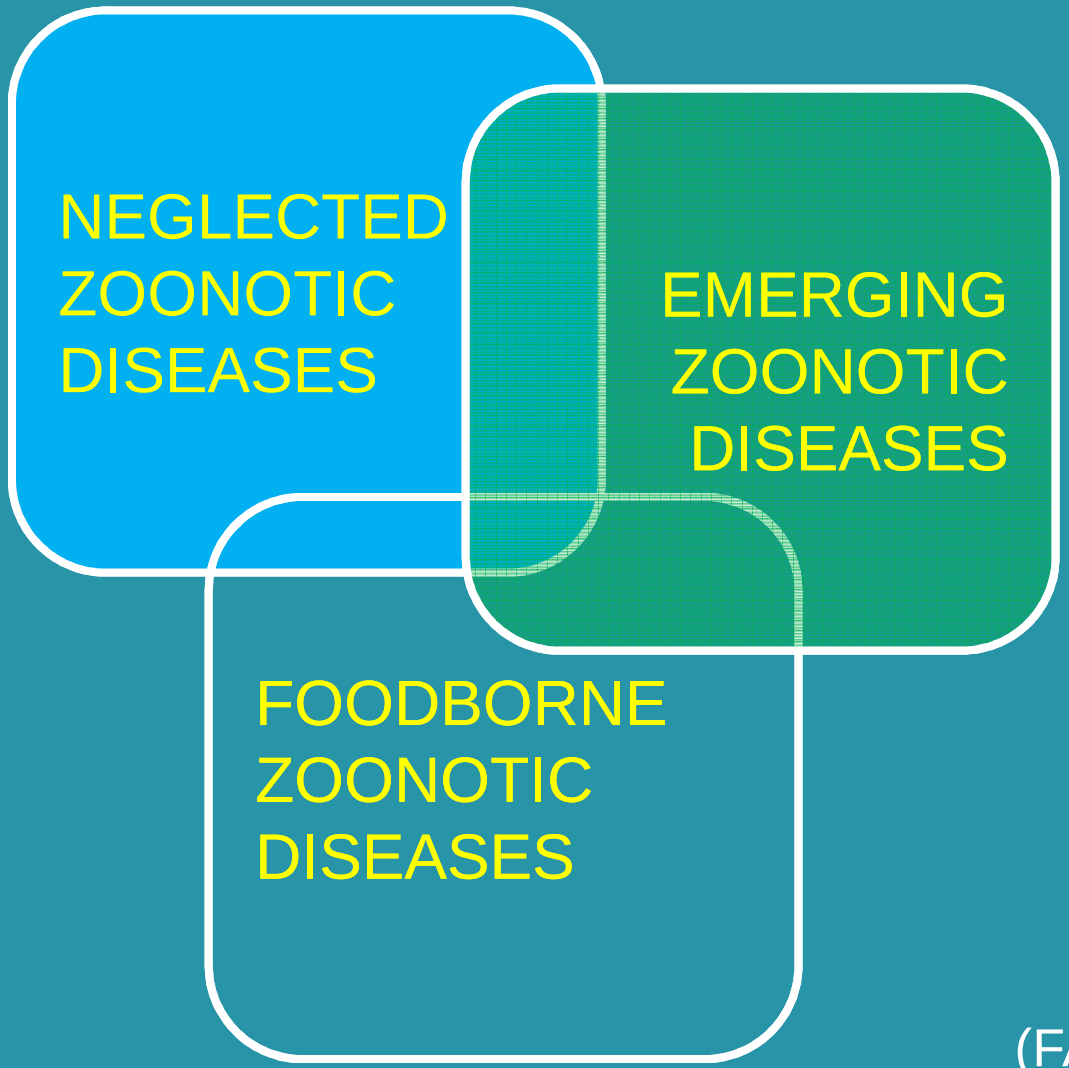
FAO approach to zoonotic diseases



(FAO, 2010)

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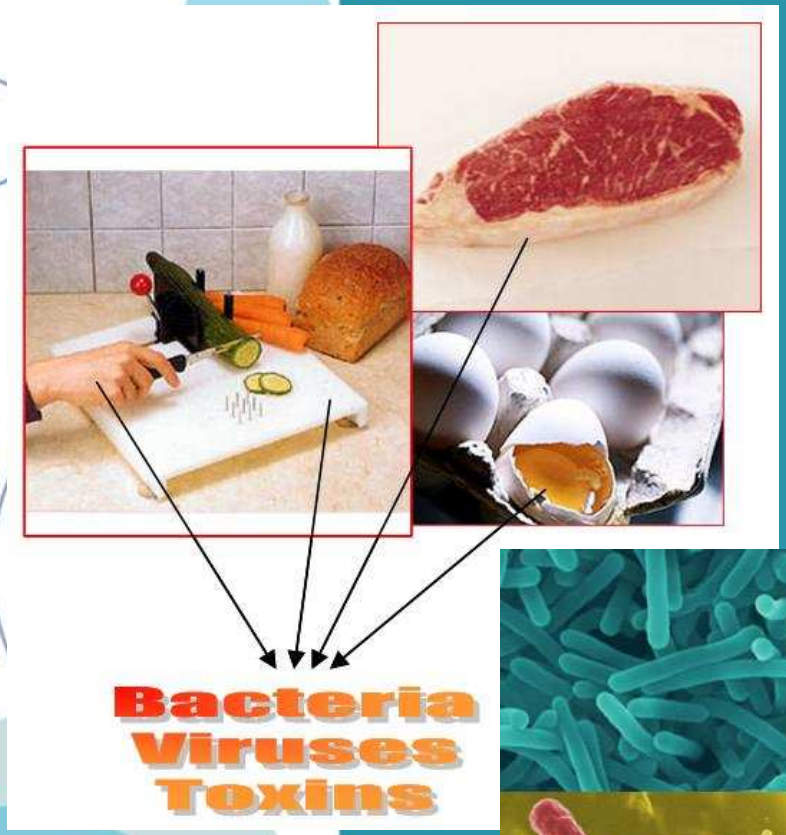
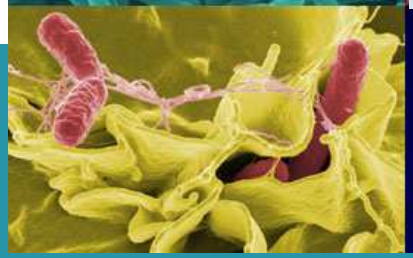
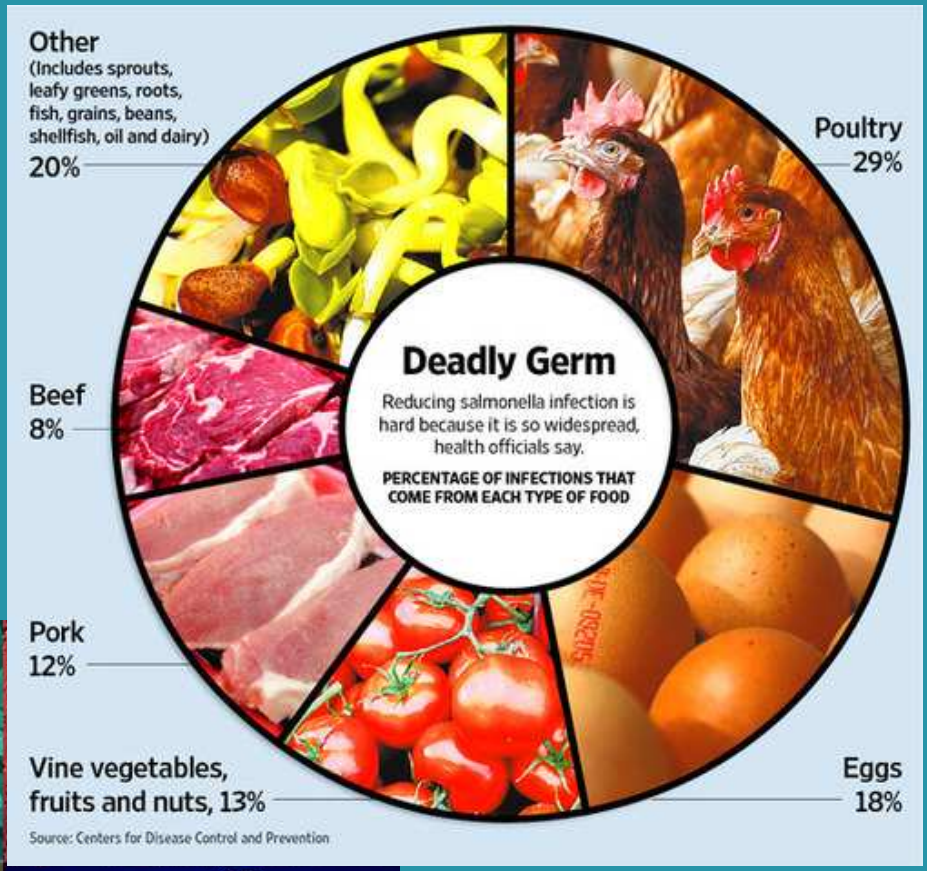
Foodborne Zoonotic diseases (FZD)







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Streptococcosis

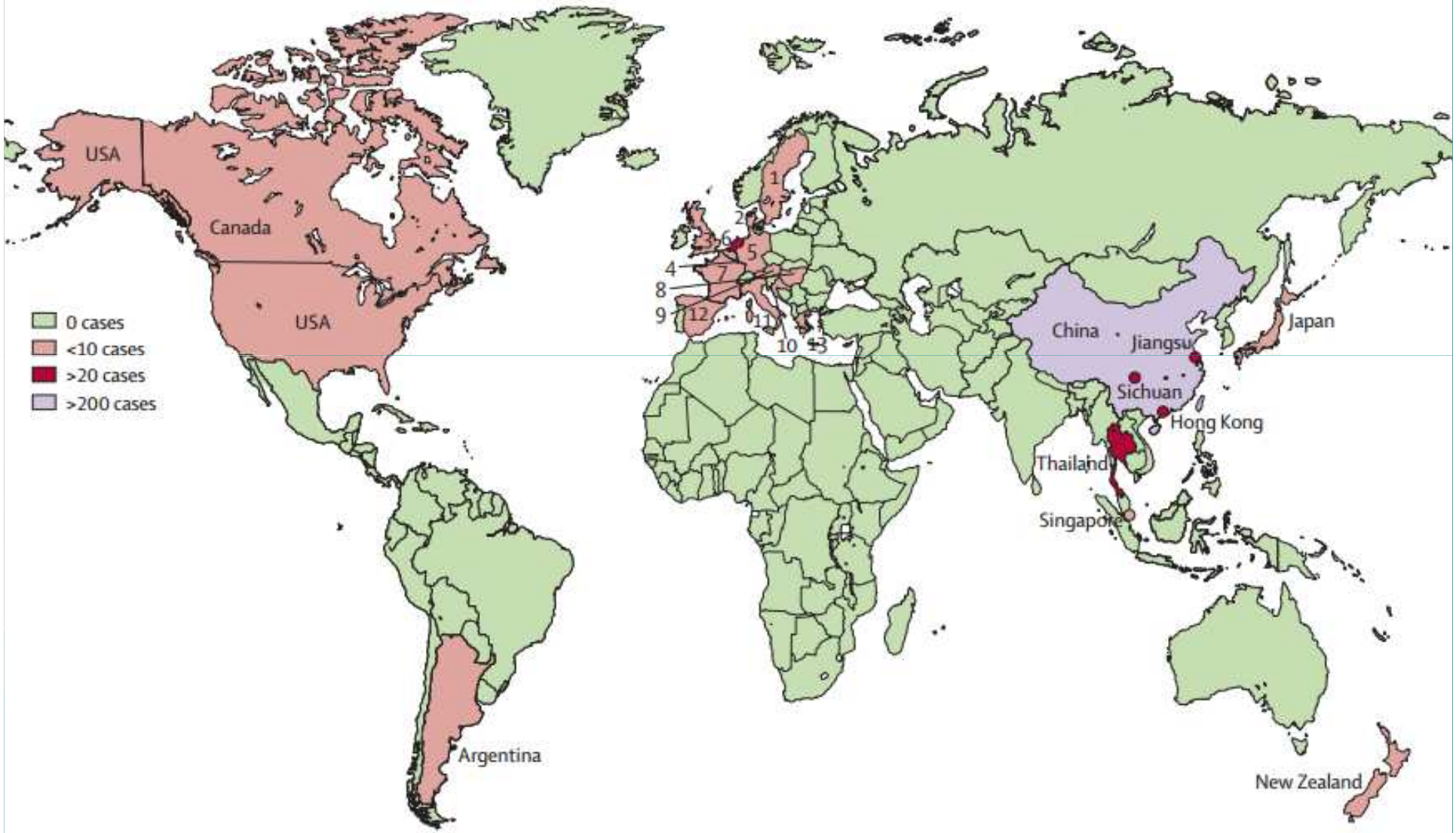
Animals known to have been infected with *Streptococcus suis*.

Animal	Notes
Birds	Culture from lung, spleen and kidney (psittacine, passerine, and ducks)
Cats	Pneumonia, moist dermatitis
Dogs	Sudden death (dog ate raw pig meat)
Deer	Peritonitis, septicemia
Horses	Meningitis, guttural pouch, pneumonia, osteomyelitis (commensal intestinal flora)
Humans	Meningitis, deafness, septicemia, epicarditis, toxic-shock syndrome
Pigs	Meningitis, arthritis, septicemia, pneumonia, vegetative valvular endocarditis
Ruminants	Meningitis, arthritis, pneumonia, peritonitis, septicemia (commensal intestinal flora)




FZD

Streptococcosis



(Lun et al., 2007)

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FZD

Streptococcosis

fleischwirtschaft.com
The online edition of FLEISCH WIRTSCHAFT afz allgemeine fleischer zeitung

News

February 28, 2013

Two persons in Vietnam killed by Streptococcus suis

fleischwirtschaft.de - VIETNAM, Hanoi. Two butchers in central Vietnam died from a bacterium that causes clinical diseases in pigs.

The two victims were hospitalised in early February with high fevers, abdominal pain and vomiting and died soon afterwards. After sending their blood samples to the Animal Health Sub-institute in Da Nang, doctors found out that the two persons had been infected with *Streptococcus suis*.

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DFZ

Driving factors of zoonoses spreading in ASEAN

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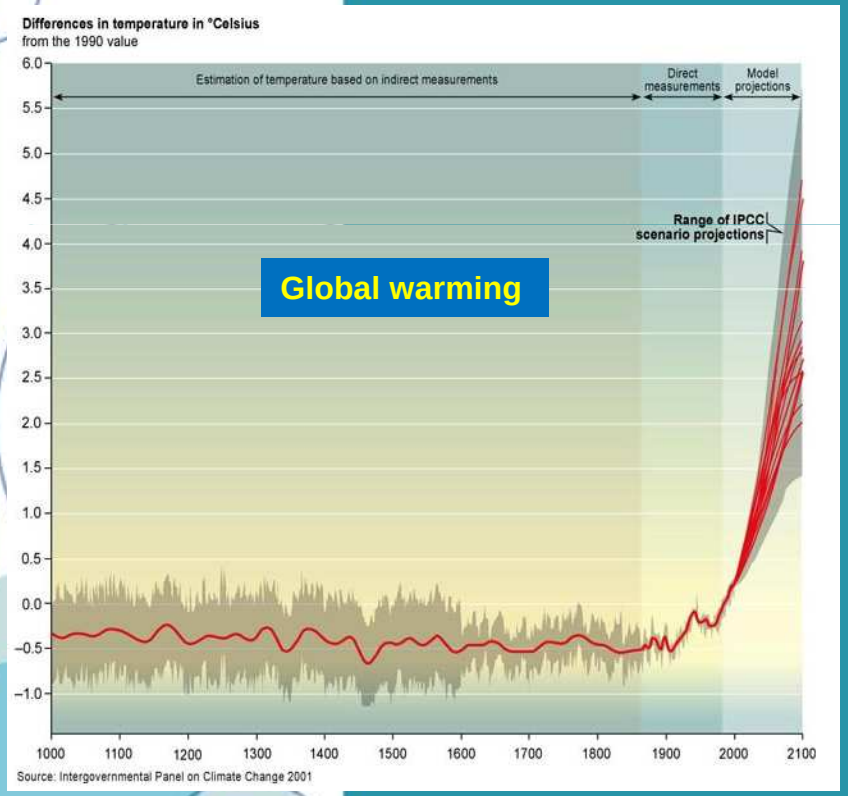
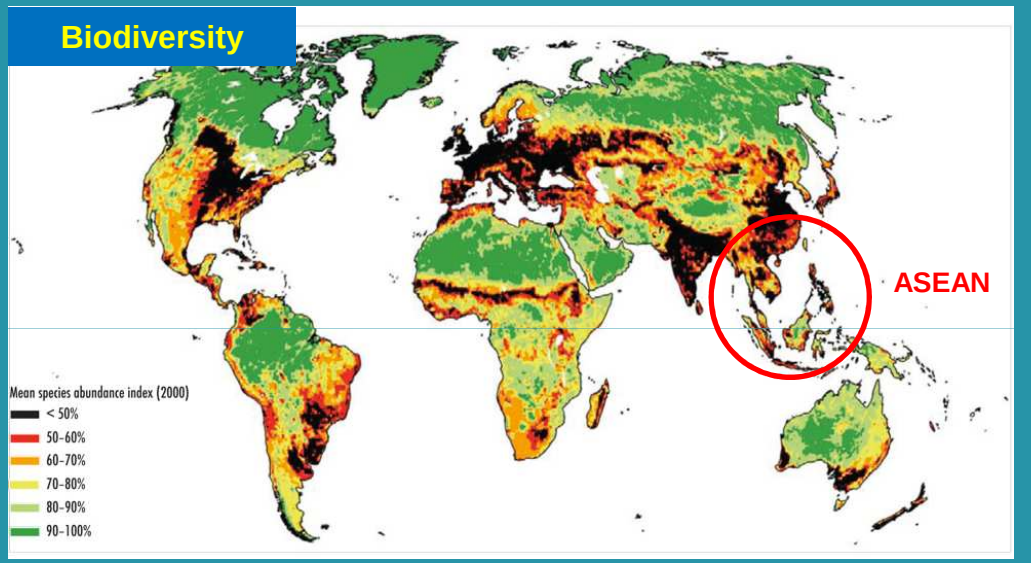
DFZ

Driving factors of zoonoses spreading in ASEAN

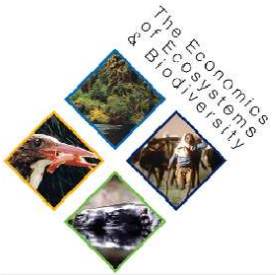
➢ Natural factors



Biodiversity



Mean species abundance in 2000



Biodiversity decline can increase the spread of infectious diseases like Hantavirus

Compiled by: Florian Matt and Ronny Gebser mainly based on Keesing et al. 2010

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DFZ

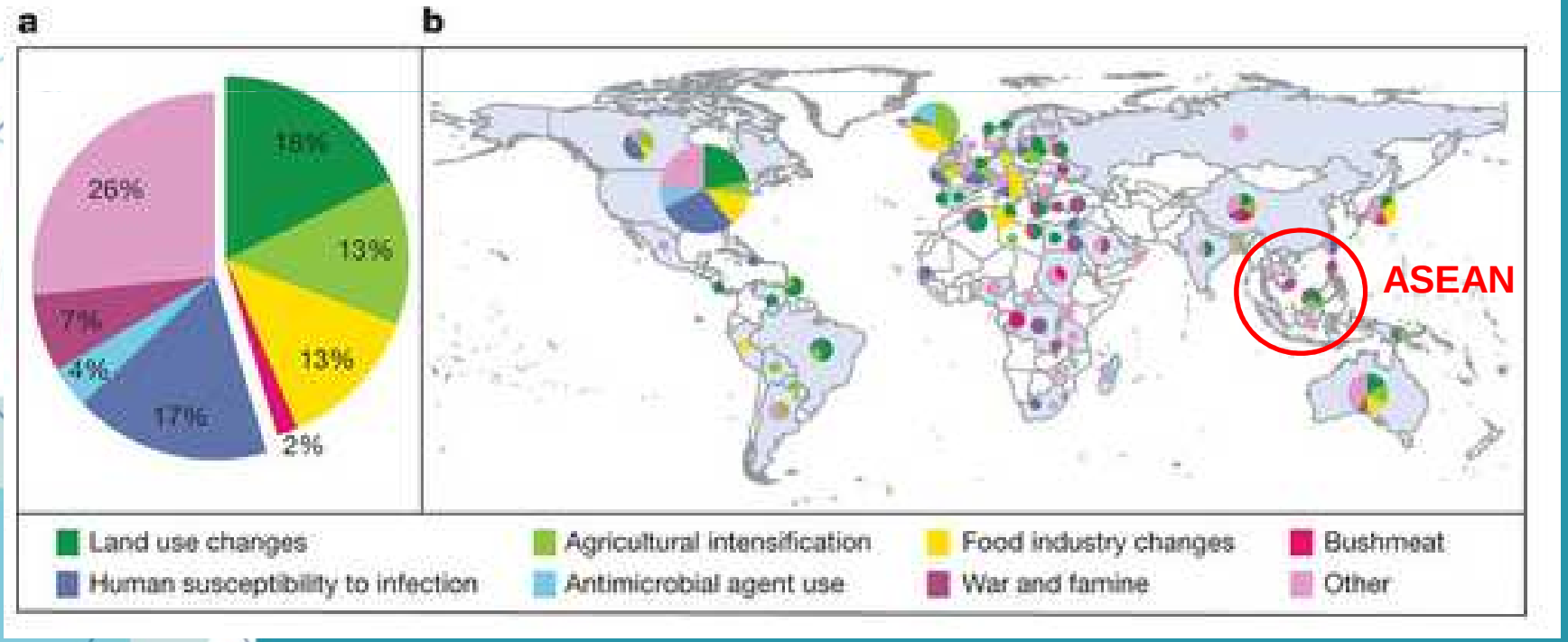
Driving factors of zoonoses spreading in ASEAN

- **Natural factors**

NATURE | REVIEW

日本語要約

Impacts of biodiversity on the emergence and transmission of infectious diseases



(Keesing et al., 2010)

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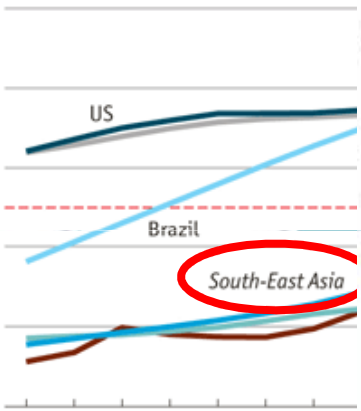
Driving factors of zoonoses spreading in ASEAN

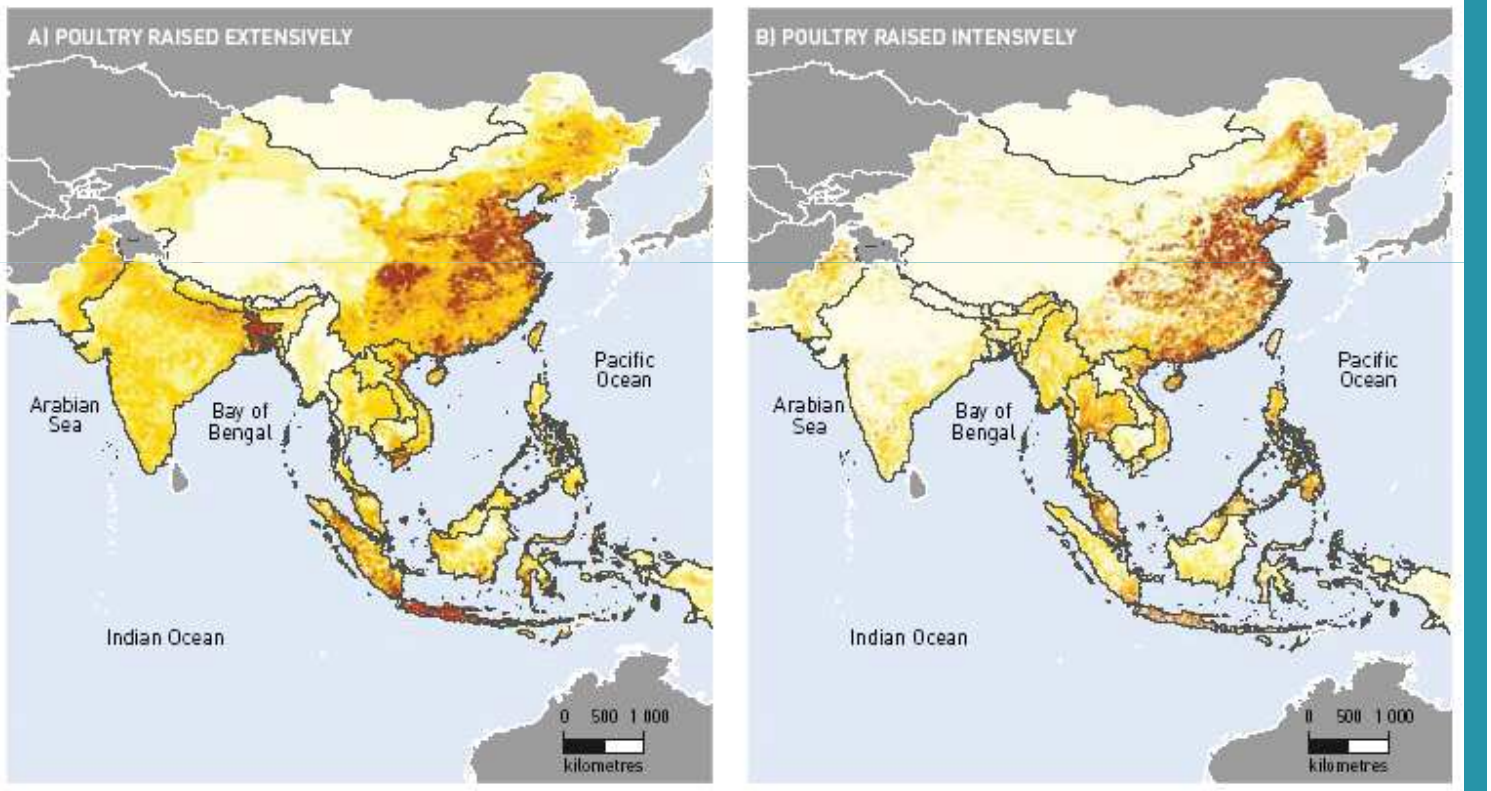
- **Socioeconomic factors**

Urbanisation

Population living in urban areas, % of total



Sources: CEIC; UN Population Division; *The Eco*



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Driving factors of zoonoses spreading in ASEAN

- **Socioeconomic factors**

Lack of biosecurity practices

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Driving factors of zoonoses spreading in ASEAN

- **Socioeconomic factors**

Ritual activities and traditional beliefs

Religious animal sacrifice

Thai Raw Fish has Deadly Risks

Bats at Tomohon Traditional Market, North Sulawesi, Indonesia

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Driving factors of zoonoses spreading in ASEAN

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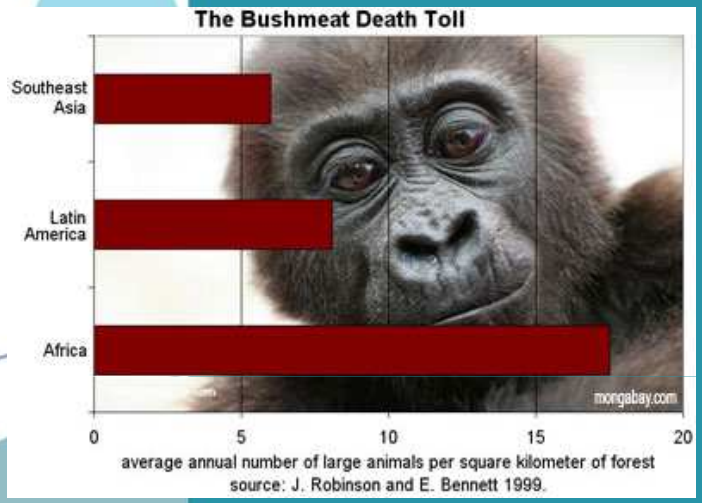
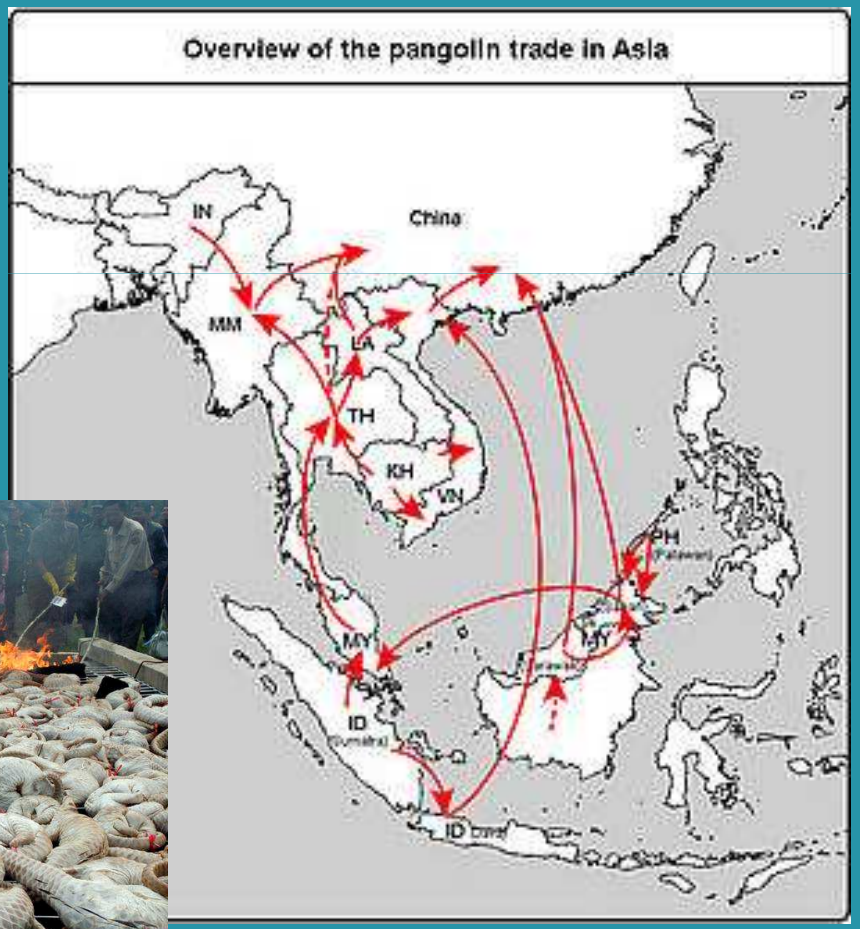


Illegal wildlife trading



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Driving factors of zoonoses spreading in ASEAN

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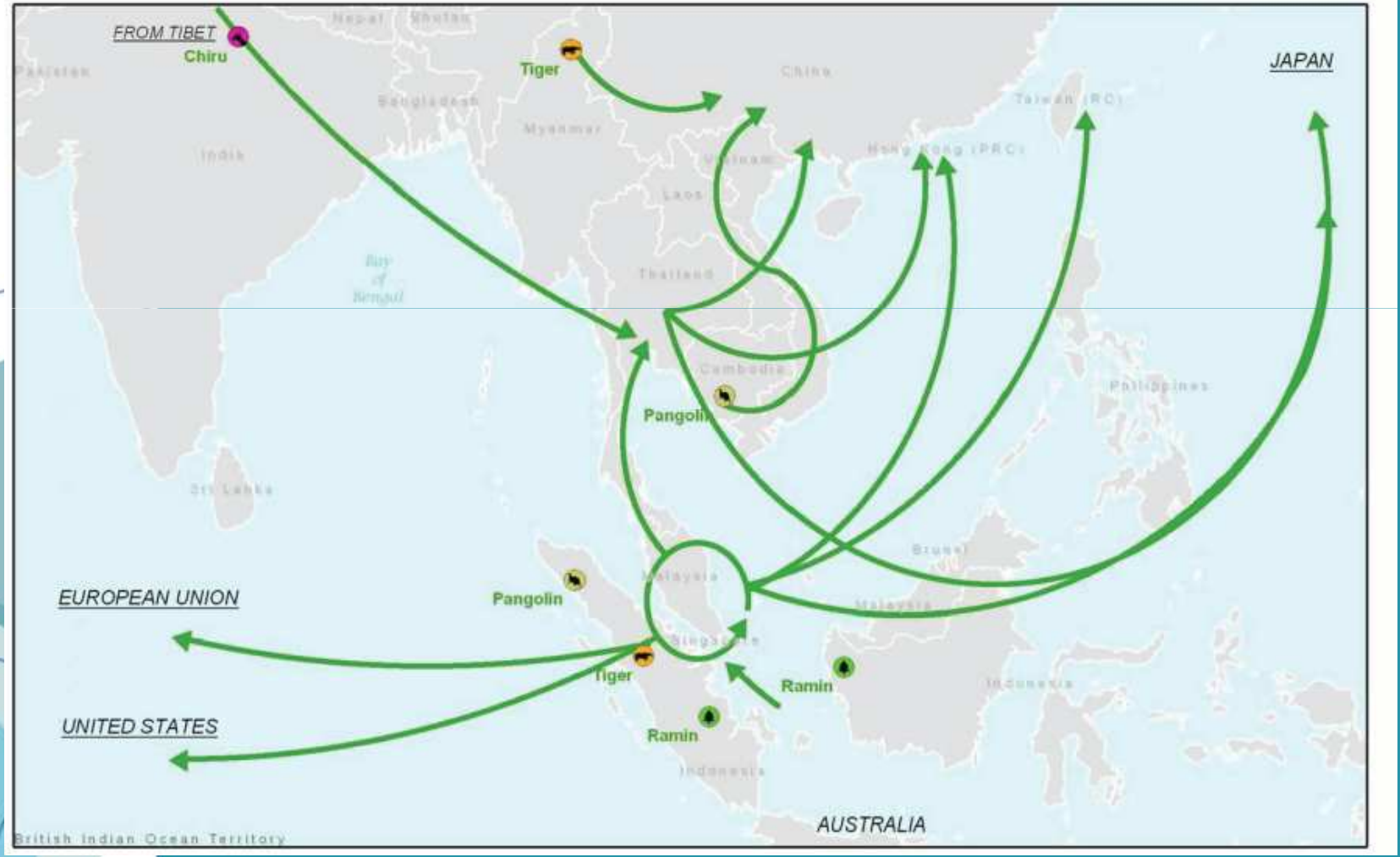
- **Socioeconomic factors**



Common illegal wildlife trade routes in SE Asia based on case studies

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How can ASEAN fight against these zoonoses?

(Karesh et al., 2012)

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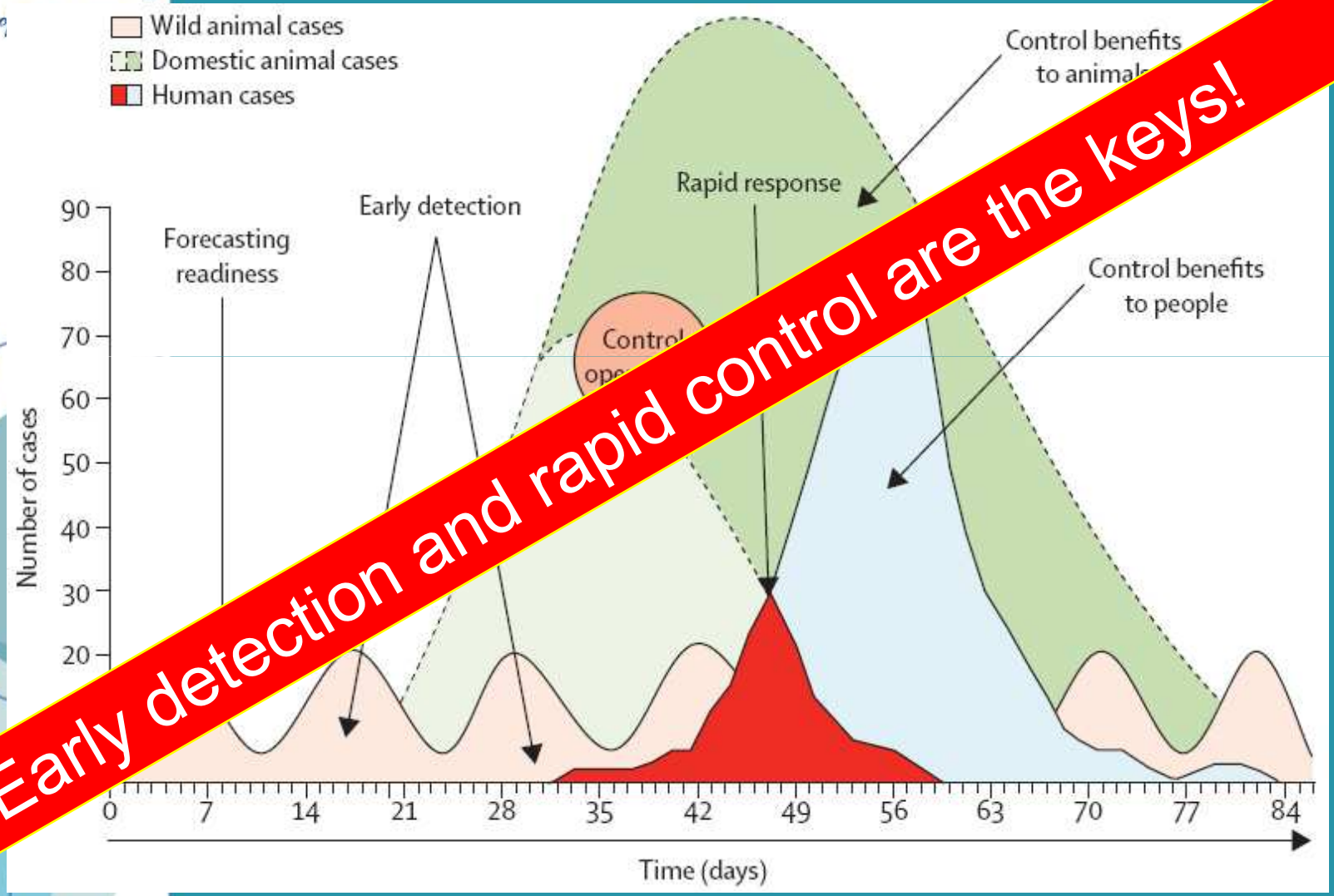
How can ASEAN fight against these zoonoses?



Early detection and rapid control are the keys!

(Karesh et al., 2012)

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How can ASEAN fight against these zoonoses?

- **ASEAN network and warning system**

The ASEAN Coordination Centre for Animal Health and Zoonoses (ACCAHZ)

The second-ever meeting of the Preparatory Committee for the ASEAN Coordinating Center for Animal Health and Zoonoses (ACCAHZ) prepared the way for the operationalization of ACCAHZ, which was born out of the need for strong and effective coordination in addressing HPEDs

Chiang Mai, Thailand • *28-29 August 2012*

ASEAN sets up a comms group for livestock

Manila, Philippines • *July 9-12, 2012*

The Inception Meeting of the ASEAN ad hoc Communication Group for Livestock (ACGL) was an acknowledgement of the role of communication in the prevention and control of infectious diseases in the region. The outputs of the Inception Meeting included a draft terms of reference document, a scope of work with indicative work plan, and the designation of communication and advocacy focal points in member states and in the region. Participants also learned the underlying principles of both communication and advocacy and how to use them against highly pathogenic and emerging diseases (HPED), a core objective of the group.

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How can ASEAN fight against these zoonoses?

- ASEAN network and warning system

ASEAN-WEN
Wildlife Enforcement Network

APEIR
Asian Partnership on Emerging Infectious Disease Research

ASEAN Plus Three Field Epidemiology Training Network
(ASEAN+3 FETN)
Building National & Regional Capacity in Field Epidemiology Training

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How can ASEAN fight against these zoonoses?

- **Collaborative research and data sharing**

ASEAN CENTRE FOR BIODIVERSITY

SciDev Net

South-East Asia blazing a trail on research collaboration

Talent Ng'andwe
29 October 2012 | EN

[HONG KONG] Researches from South-East Asia, a region that has recorded impressive increases in scientific research output over recent years, tend to collaborate with international colleagues more than the global average, according to a study.

Research output involving international collaboration ranges from around 30 per cent of the total research output in Malaysia to more than 90 per cent in Cambodia and Laos. This is considerably higher than the global average of less than 20 per cent.

Up to 90 per cent of some South-East Asia nations' research output is driven by international collaboration
Flickr/IRRI Images

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How can ASEAN fight against these zoonoses?

- **Collaborative research and data sharing**

The Southeast Asia One - Health University Network

The Faculty of Veterinary Science has been appointed as the regional coordinator for universities under the *"Southeast Asia One Health University Network"* initiative. Talking to *Spectrum*, Dean of the Faculty, Dr. Pamtep Ratanakom *(pictured)*, explained that human, animal and ecosystem health are all inextricably linked. As a result, many infectious diseases in humans are transmitted from animal hosts. There are refered to as zoonosis or zoonotics with recent examples being West Nile Virus and Influenza A virus subtype H5N1 (Avian Influenza). As humans and wild and domestic animals continue to come into contact with each other, more diseases of this type can be expected. The USAID funded One-Health Initiative was established to address this situation, and works by adopting a multidisciplinary and collaborative approach to healthcare.

"One-Health Southeast Asia University office is to be established at the Faculty; with many regional partners already identified. These include Mahidol University's Faculties of Tropical Medicine, Public Health, Environment and Resource Studies and Veterinary Science; Thai universities, such as Chiang Mai University; plus other institutions from across the ASEAN region. Dr. Ratanakorn intends to use the Faculty's considerable experience with Avian Influenza as an example of how to deal with future disease incidents, stating *"We want people to be ready for action, rather than talking."* Illustrating the network's multidisciplinary and collaborative approach the Faculty is about to launch a series of activities to mark World Rabies Day (28th September 2011). Several of Mahidol

University's institutions are already involved; for instance, the College of Music will compose a song, whilst Mahidol University International College's Fine and Applied Arts Division will produce a logo and animation; both of which aim to raise people's awareness of Rabies. Other activities will see seminars and campaigns at Mahidol University's Faculties of Medicine (Ramathibodi and Siriraj Hospitals) informing patients about rabies prevention and post exposure treatment. The College of Sports Science and Technology is also getting involved, and will inform cyclists and joggers how to deal with attacks by stray dogs etc.

To learn more about the One-Health Initiative, please visit http://www.onehealthinitiative.com/

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How can ASEAN fight against these zoonoses?

The best way to predict the future is to invent it.

- Alan Kay, 1971-

Let's invent the ASEAN future free from zoonoses with strong networks and research collaboration.

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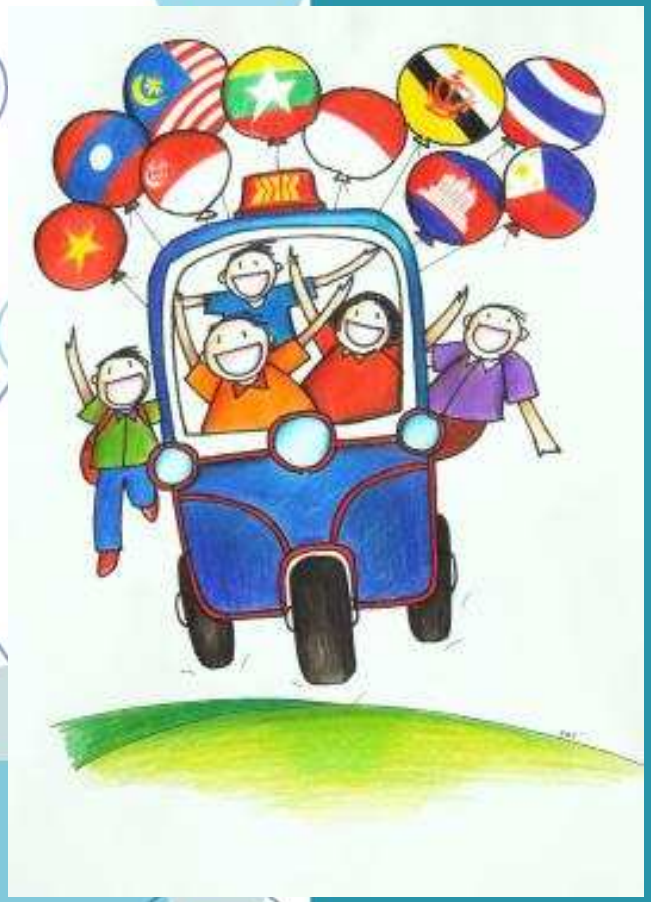

Thank you for your kind attention