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FMD situation and control strategies in SE Asia and the Pacific

Dr Ronello C. Abila

Regional Coordinator

OIE South East Asia - Bangkok

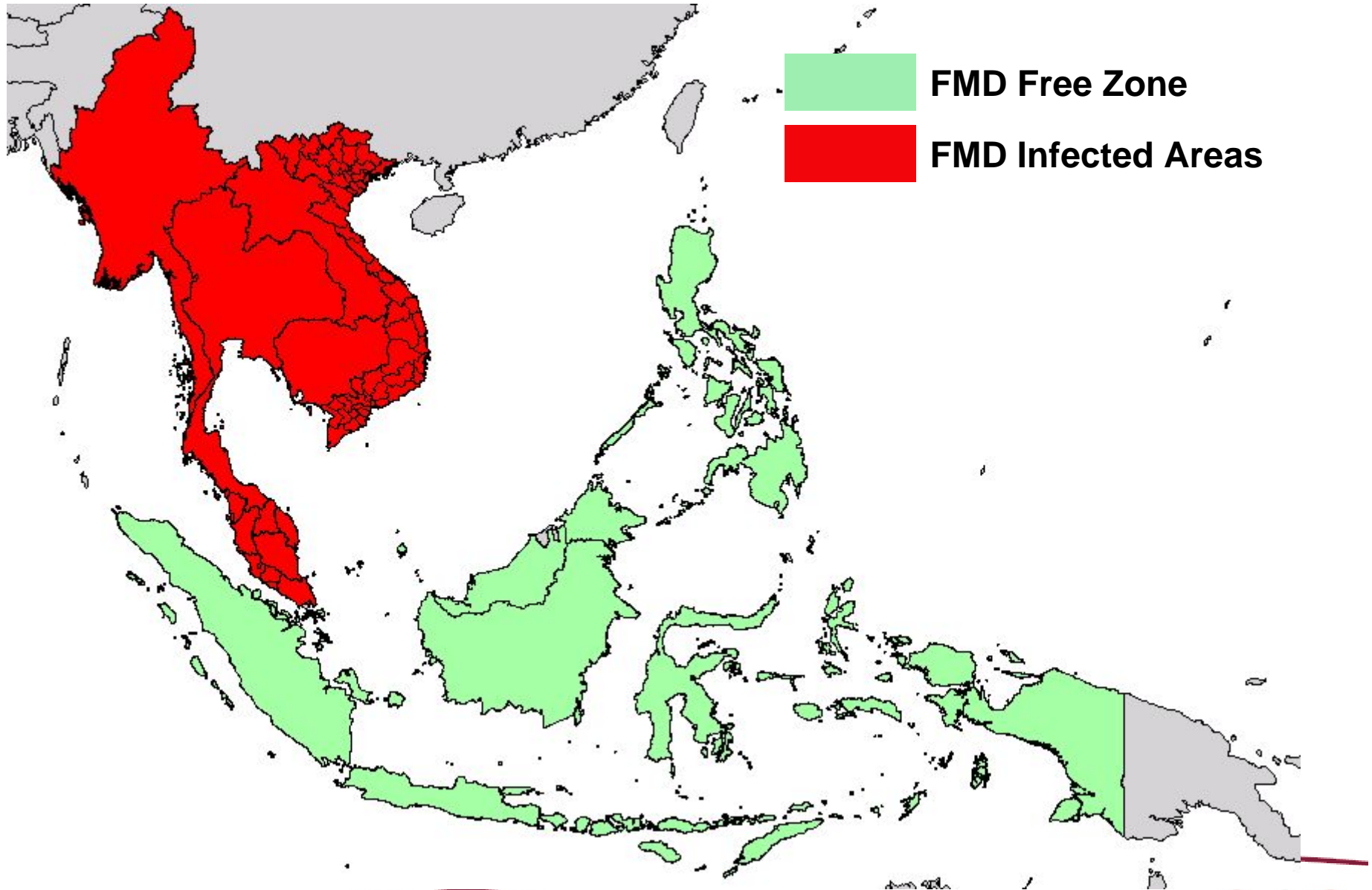


Outline

- **FMD situation**
- **Control measures**
 - **Surveillance**
 - **Vaccination**
 - **Animal Movement management**
 - **Communication and public awareness**



FMD Status of South East Asia



OIE Recognised FMD Free without Vaccination

- **FMD Free countries**
 - Brunei Darussalam
 - Indonesia
 - Singapore
- **FMD Free zones**
 - Malaysia (zones on Sabah and Sarawak)
 - Philippines (zones on Mindanao, Visayas, Masbate and Palawan)

Traditionally FMD Free countries in the Pacific

- **Timor Leste**
- **Papua New Guinea**
- **Fiji**
- **Vanuatu**
- **. . . . and other South Pacific Islands**

Livestock Production Systems of **FMD susceptible species**

- **Cattle and Buffalo**
 - Mainly small holder
 - Mostly used for draft power
 - Very few dairy animals
- **Pigs**
 - Majority is smallholder
 - Significant commercial farms in Thailand, Vietnam and Philippines
- **Goats and Sheep**
 - Mainly smallholder
 - Significant population in Central Myanmar



FMD serotypes in Southeast Asia

- Serotype **O**
 - the most common with 3 topotypes
 - SE Asia, Pan Asia and Cathay
- Serotype **A**
- Serotype **Asia 1**
- Serotype **C**
 - Present in the Philippines from 1976 to 1995.
 - Never reported in other countries in SE Asia

Serotype O

- **South East Asia**
 - indigenous in mainland Southeast Asia
 - The common FMDV in Myanmar, Thailand, Malaysia, Lao PDR, Cambodia and Vietnam
 - Two distinct lineages
 - Cambodia 94
 - Myanmar 98
 - Most common during the past 3 years
 - Caused major epizootic in Vietnam in 2006

Serotype O

- **Pan Asia**
 - introduced in late 1990s
 - major epizootics in Vietnam in 2000 and also in southern part of Lao PDR(Savanaket province)
 - Confirmed in Cambodia (2000)Malaysia (2000), Thailand (1999)

Serotype O

- **Cathay (pig adapted)**
 - The only serotype found in the Philippines since 1995 (probably introduced in late 1994); last outbreak in Dec 2005
 - confirmed in Vietnam 1997 to present
 - confirmed in Thailand and Malaysia in 2005

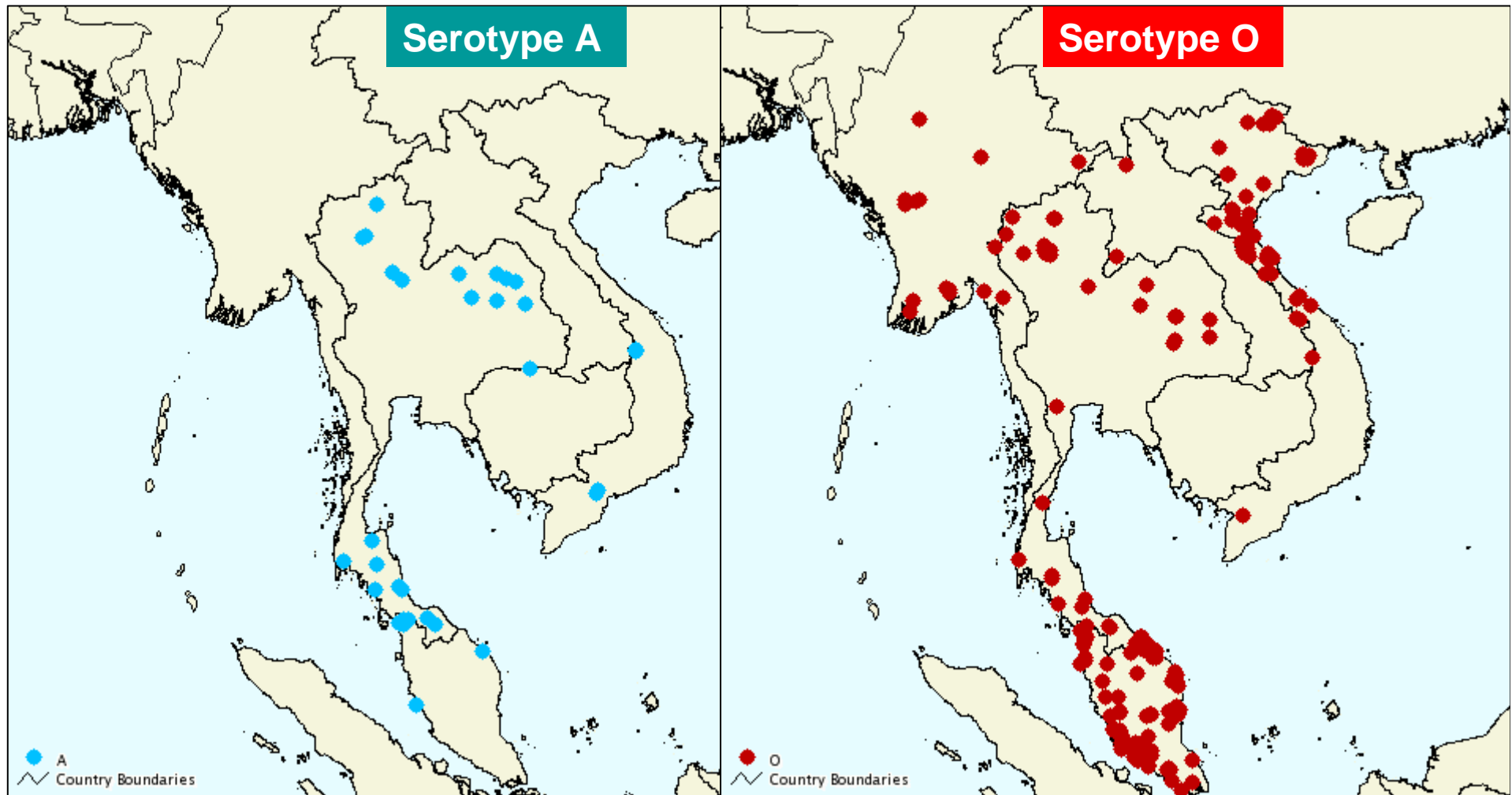
Serotype A

- Asian topotype
- Indigenous in the region
- Present in Thailand (yearly outbreaks)
- First reported in Malaysia in 2003 and in Vietnam in 2004
- Sporadic in Lao (2003 and 2006/2007)
- Yearly outbreaks in Cambodia since 2006

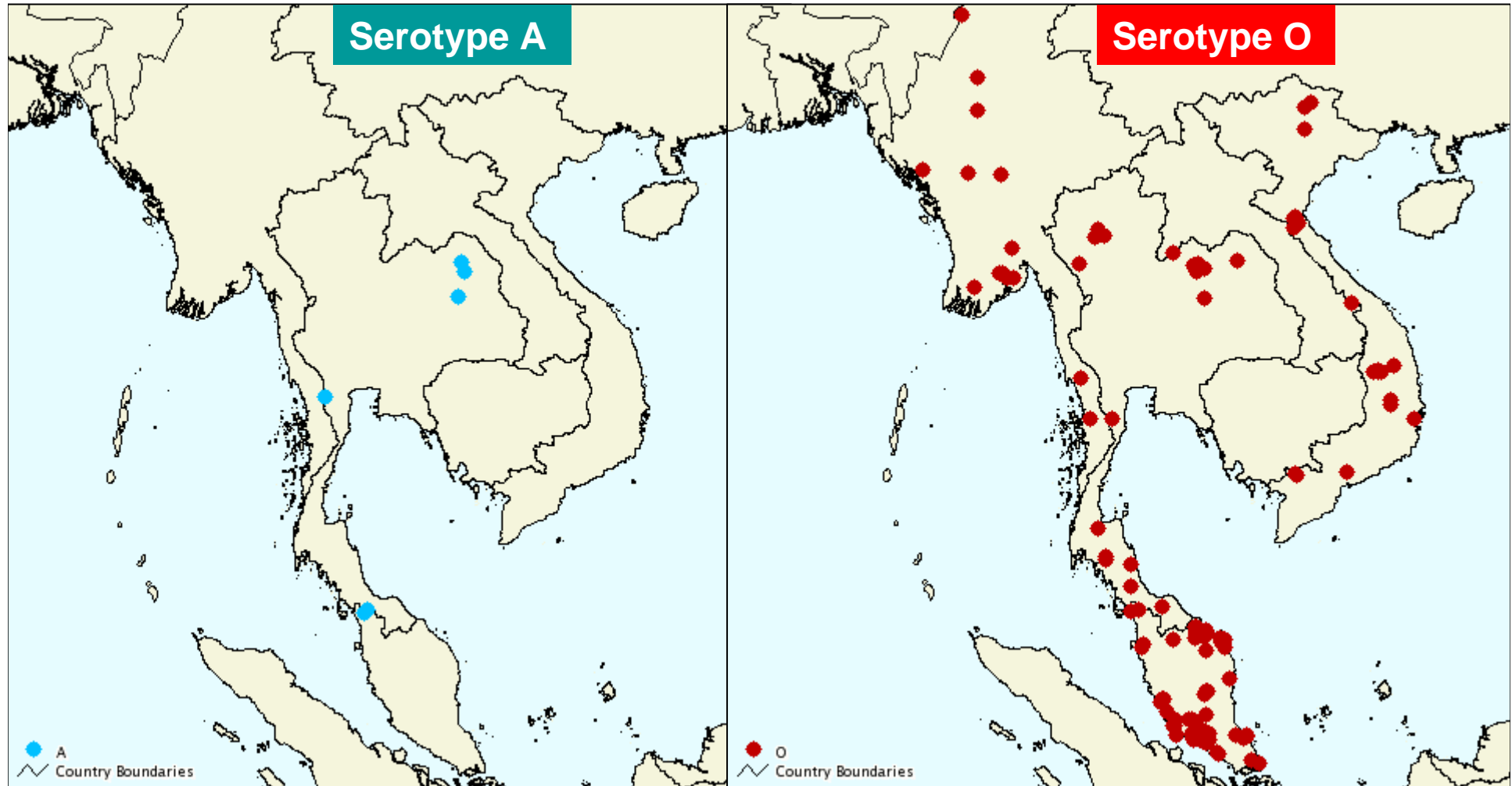
Serotype Asia 1

- **Indigenous in the region**
- **Sporadic outbreaks in Myanmar and Vietnam**
- **Not seen in Thailand, Lao PDR, Malaysia and Cambodia since 2000**

FMD Serotypes in 2008



FMD Serotypes in 2007



FMD serotypes in Southeast Asia

Country	2002	2003	2004	2005	2006	2007	2008
Cambodia	???	???	???	???	O, A	O, A	O, A
Indonesia	NO OUTBREAK						
Lao PDR	O	O, A	O	O	A	O, A	O
Malaysia	O	O, A	O, A	O	O, A	O	O, A
Myanmar	O	O	O	O, Asia 1	O	O	O
Philippines	O	O	O	O	NO OUTBREAK		
Thailand	O, A	O, A	O, A	O, A	O, A	O, A	O, A
Viet Nam	O	O	O, A	O, A, Asia 1	O, A, Asia 1	O, Asia 1	O, A, Asia1

Reference: SEAFMD Monthly Outbreak Report

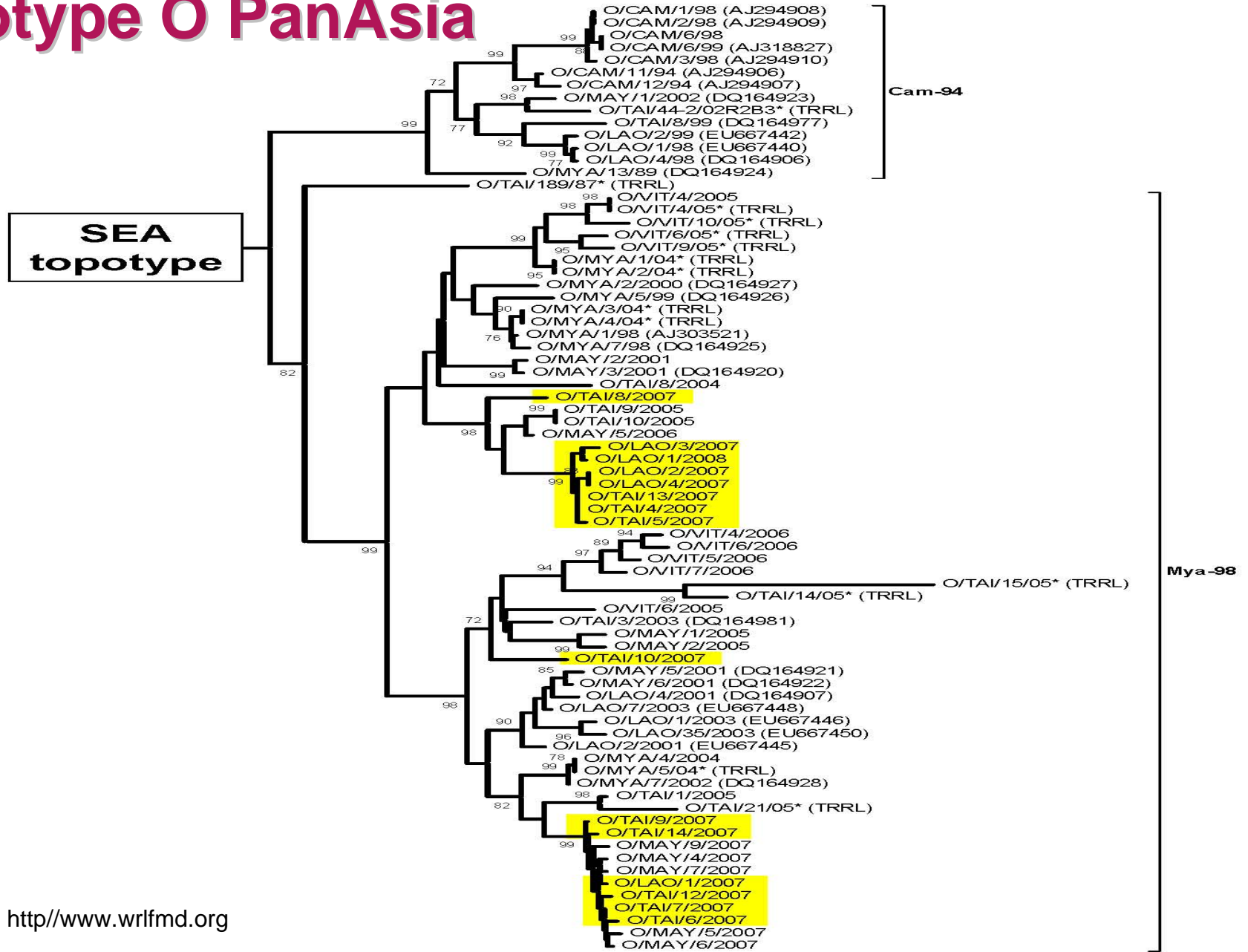


FMDV O topotypes

Country	2004	2005	2006	2007	2008
Cambodia	???	???	PanAsia		SEA (Mya 98)
Lao PDR			PanAsia	SEA (Mya 98)	SEA (Mya 98)
Malaysia					
Myanmar	SEA (Mya 98)	SEA (Mya 98)	SEA (Mya 98) PanAsia	SEA (Mya 98)	SEA (Mya 98)
Thailand	SEA (Mya 98)	SEA (Mya 98) Cathay (Hkn 94)	SEA (Mya 98)	SEA (Mya 98)	SEA (Mya 98)
Vietnam		SEA (Mya 98) PanAsia Cathay (Hkn 94)	SEA (Mya 98) Cathay (Hkn 94)		

Source: Regional Reference Laboratory for Foot and Mouth Disease Virus in South East Asia, Pakchong, Thailand

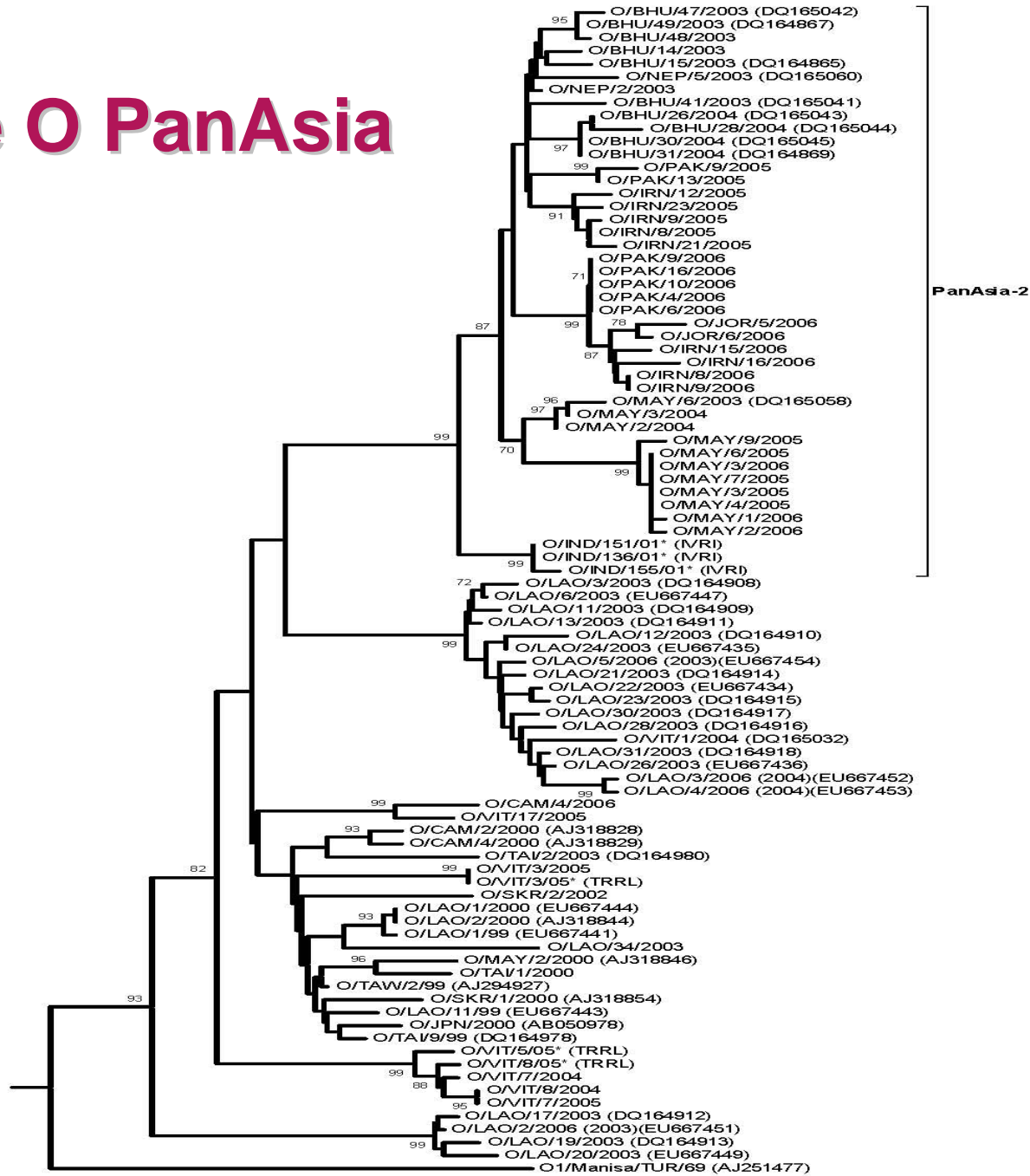
Serotype O PanAsia



Source: <http://www.wrlfmd.org>

Serotype O PanAsia

**ME-SA
topotype**

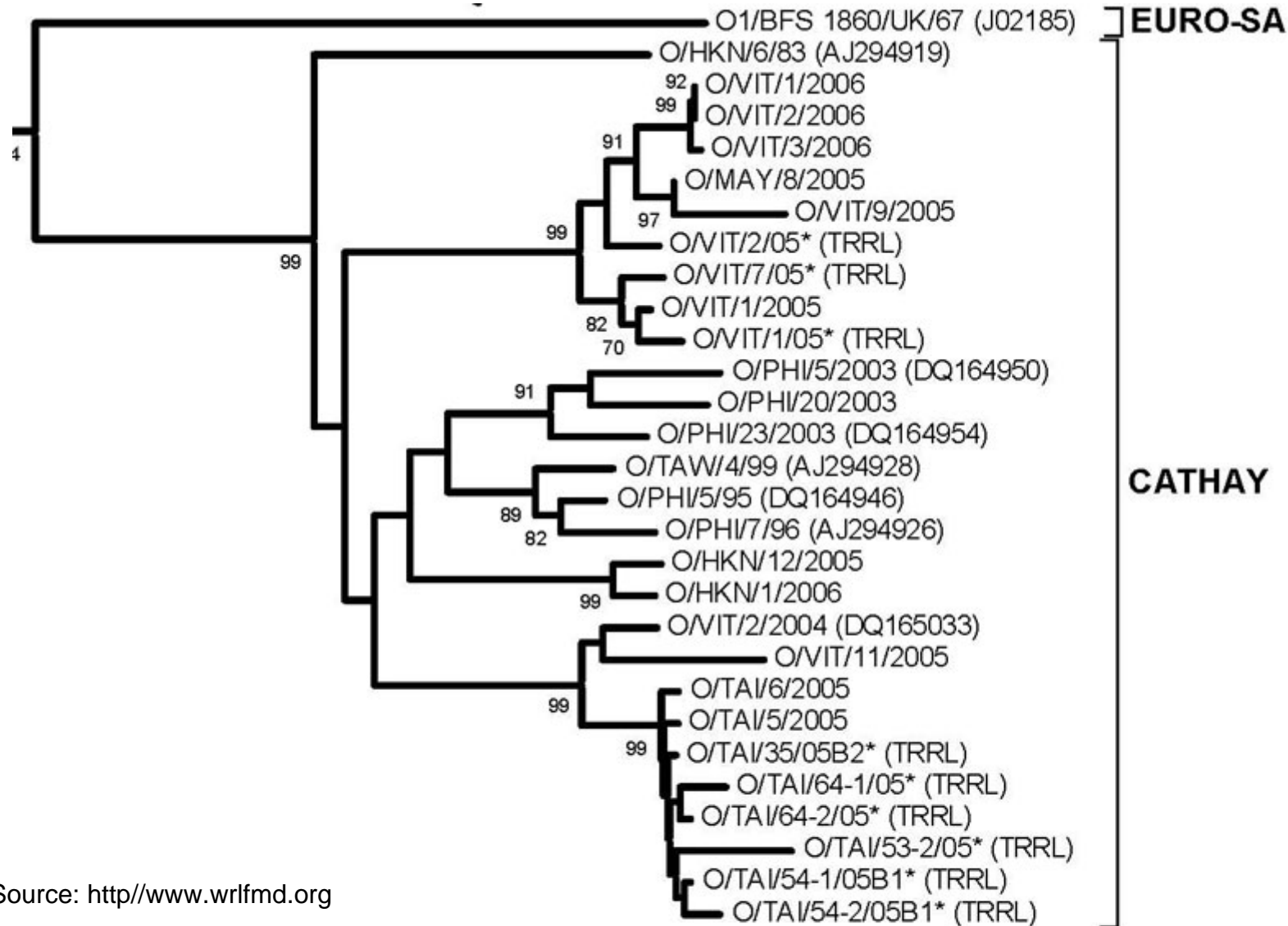


Source: <http://www.wrlfmd.org>

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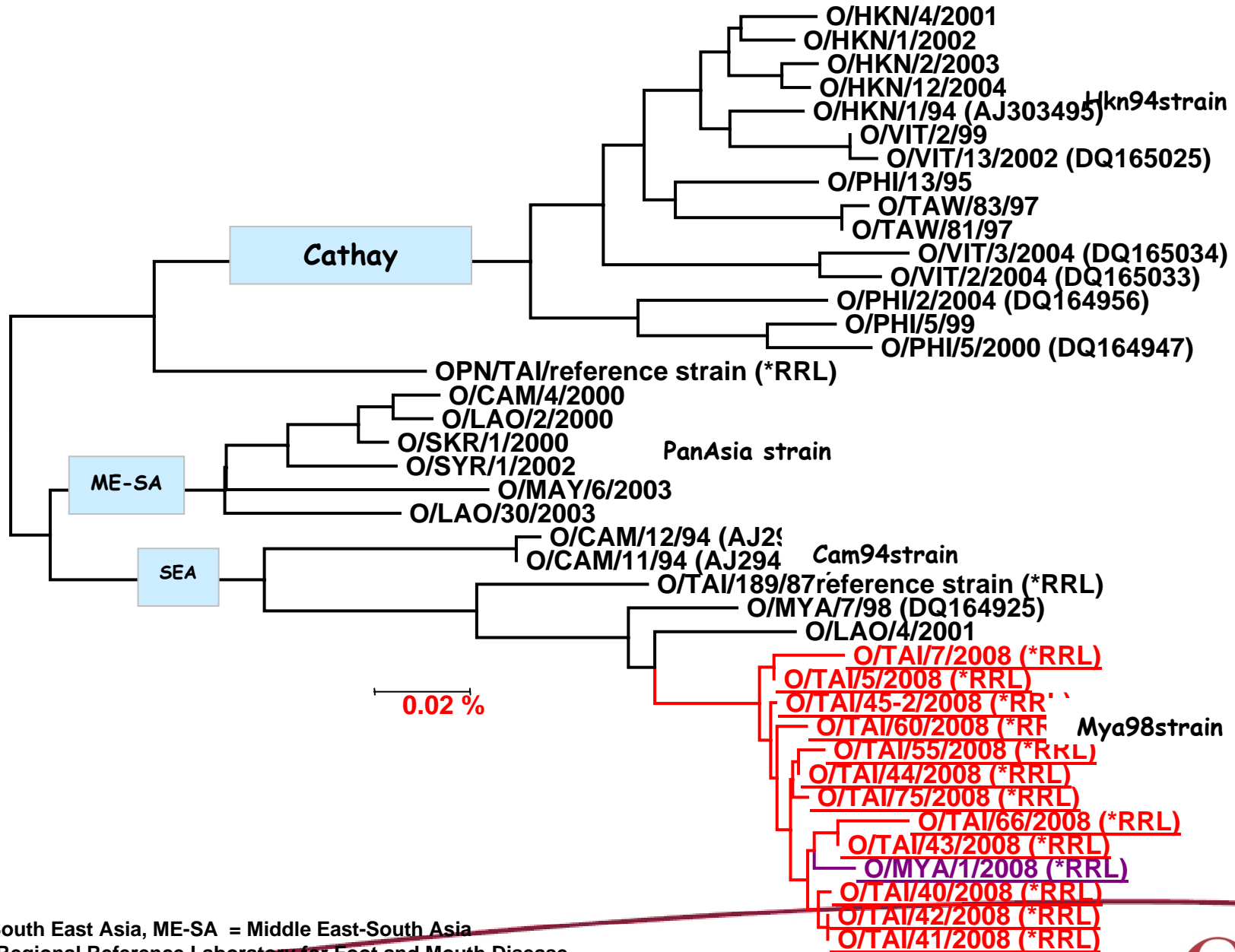
Serotype O Cathay topotype



Source: <http://www.wrlfmd.org>



FMDV type O in South East Asia 2008

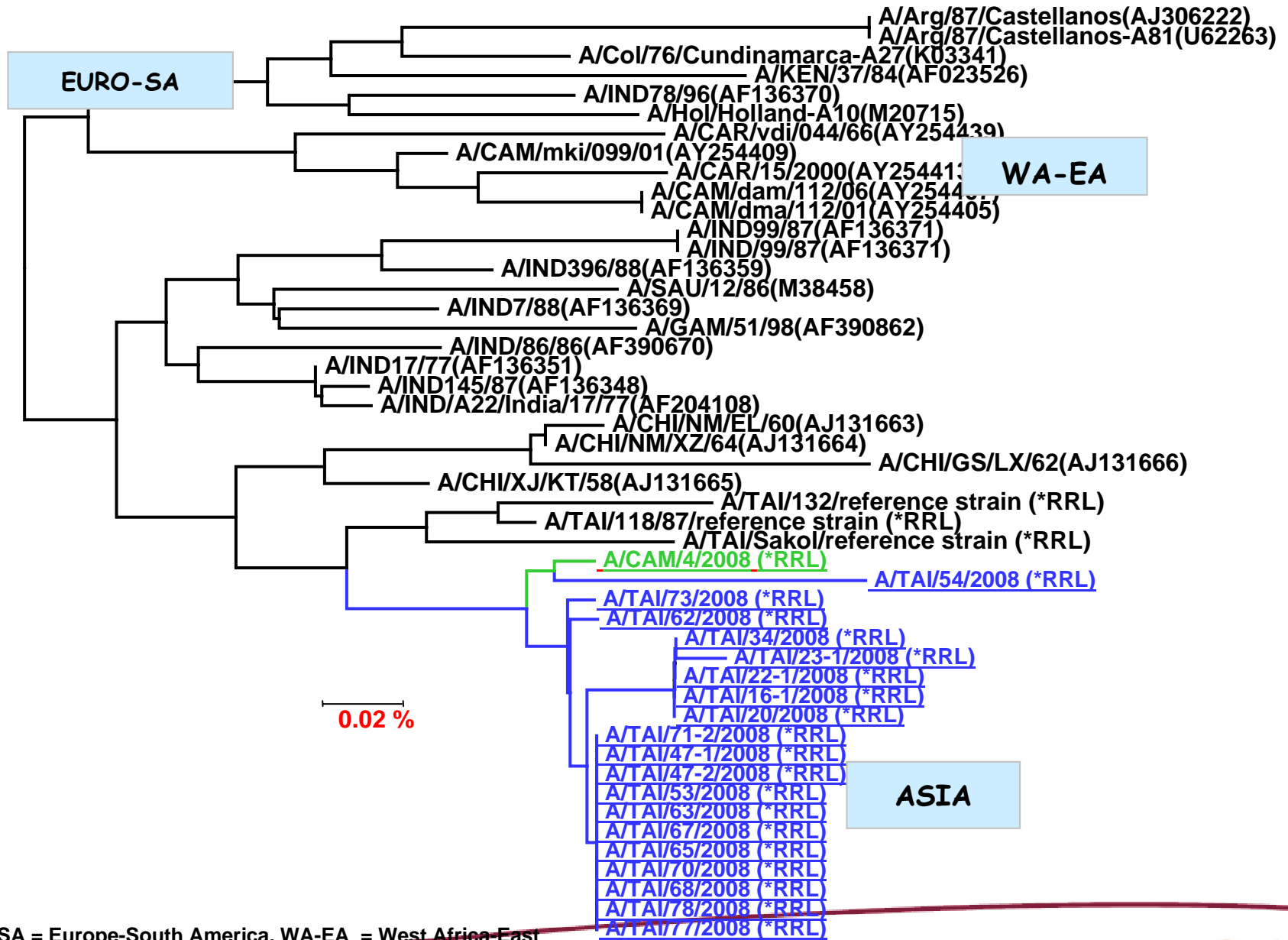


SEA = South East Asia, ME-SA = Middle East-South Asia
 *RRL = Regional Reference Laboratory for Foot and Mouth Disease
 Virus in
 South East Asia
 Others sample code = Submitted to the GenBank databases

Source: Panithan Thongtha, Rattanee Thongtha, RRL Up date 25/02/09



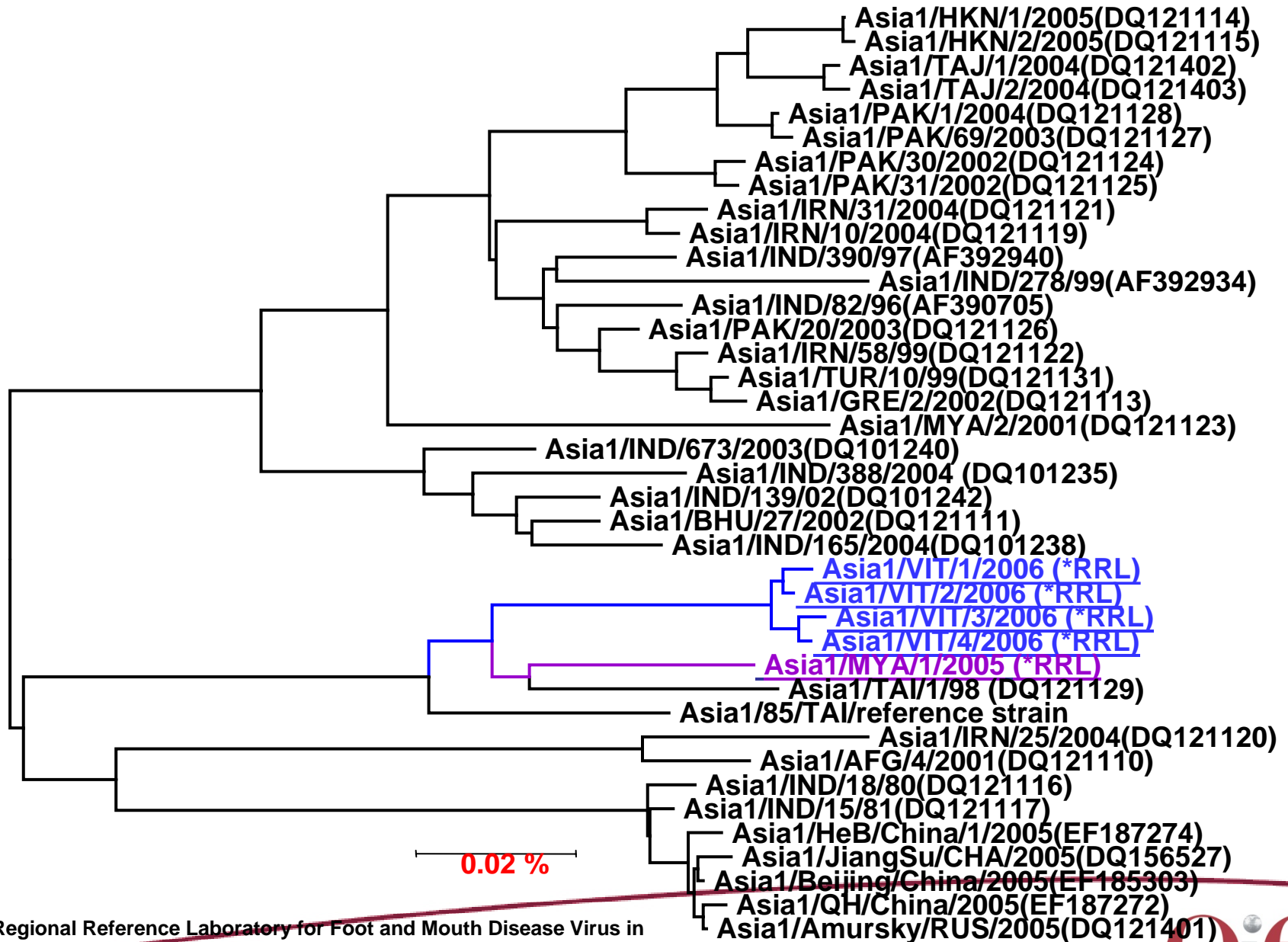
FMDV type A in South East Asia 2008



EURO-SA = Europe-South America, WA-EA = West Africa-East Africa
 *RRL = Regional Reference Laboratory for Foot and Mouth Disease Virus in South East Asia



FMDV type Asia 1 South East Asia 2005-2006



*RRL = Regional Reference Laboratory for Foot and Mouth Disease Virus in South East Asia

Others sample code = Submitted to the GenBank databases (<http://www.ncbi.nlm.nih.gov/>)

FMD outbreaks in Southeast Asia

Country	2002	2003	2004	2005	2006	2007	2008
Cambodia	63	30	35	54	53	5	42
Indonesia	NO OUTBREAK						
Lao PDR	27	119	93	4	119	20	36
Malaysia	31	16	35	69	89	98	146
Myanmar	32	8	28	18	43	17	11
Philippines	270	266	123	43		NO OUTBREAK	
Thailand	162	399	219	117	47	35	52
Viet Nam	36	33	47	51	1326	196	153
Total	621	871	585	356	1677	371	440

Ref: SEAFMD Country Reports

Temporal Distribution

- **Seasonal pattern**
 - peak during rainy season (June to September)
 - Cambodia, Lao PDR, Myanmar
- **Festivals**
 - Malaysia and South of Thailand (October to January)
 - Vietnam (increase before and after Tet festival)
- **Sporadic epizootics**
 - Lao PDR

Species affected

- **Cambodia – mainly cattle and buffalo**
- **Lao PDR – mainly cattle and buffalo**
 - there were some pigs affected in early 2000 epizootic of PanAsia
- **Malaysia – mainly cattle and buffalo**
- **Myanmar - mainly cattle and buffalo**
- **Thailand - mainly cattle and buffalo; very few pigs reported**
- **Vietnam – Cattle, buffalo and pigs**

SOURCES OF OUTBREAKS

Cambodia	Unknown
Lao PDR	Animal movement, unknown
Myanmar	Contact with infected neighbors
Malaysia	Illegal movement
Thailand	Animal movement (legal and illegal)
Vietnam	movement

Reference: SEAFMD Monthly Outbreak Report



Control Measures

- **Surveillance**
- **Vaccination**
- **Animal Movement**
- **Public awareness campaign**

Surveillance (1)

- **Strengthening of both passive and active surveillance**
- **Harmonize reporting system**
 - **Standard format using the WAHIS emergency report**
- **Training on Outbreak Investigation and Management**
- **Pilot cross-sectional survey**

Surveillance (2)

- **SEAFMD Epidemiology Network (EpiNet)**
 - Harmonise reporting protocol and design for surveillance
- **SEAFMD Laboratory Network (LabNet)**
 - Harmonise diagnostic procedures in line with OIE standards
 - Proficiency testing and quality assurance



SEAFMD Reporting

OIE Regional Coordination Unit Bangkok - Mozilla Firefox

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http://www.arahis.oie.int/reports.php

Most Visited Getting Started Latest Headlines http://www.thailandhi...

SEAFMD Campaign

SEAFMD OIE Organisation Mondiale de la Santé Animale World Organization for Animal Health Organización Mundial de Sanidad Animal

FMD Outbreak Reports

Select report parameters

Report Type: Country Province Country: Whole Region

Disease: Foot and mouth disease Serotype: -All serotypes-

Date start: Month: 01 Year: 2008 Date end: Month: 05 Year: 2009

Output Type: Table Chart Map Show Data


	Prior Cont.*	Jan 2008	Feb 2008	Mar 2008	Apr 2008	May 2008	Jun 2008	Jul 2008	Aug 2008	Sep 2008	Oct 2008	Nov 2008	Dec 2008	Jan 2009	Feb 2009	Mar 2009	Apr 2009	May 2009	Total
Cambodia	10	1	9	1	2	1	0	6	2	1	8	6	0	2	5	1	6	0	61
Laos	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Myanmar	0	1	1	0	0	0	5	3	0	0	1	0	0	3	3	3	1	1	22
Malaysia	0	20	10	13	18	14	11	8	13	8	9	5	8	0	0	0	0	0	137
Thailand	8	5	0	1	1	4	2	6	11	3	5	6	8	16	7	3	0	0	86
Viet Nam	16	2	1	14	12	5	16	6	1	1	1	1	1	5	2	5	0	0	89
Total																			396

* Outbreaks prior to the period you have selected which are ongoing.

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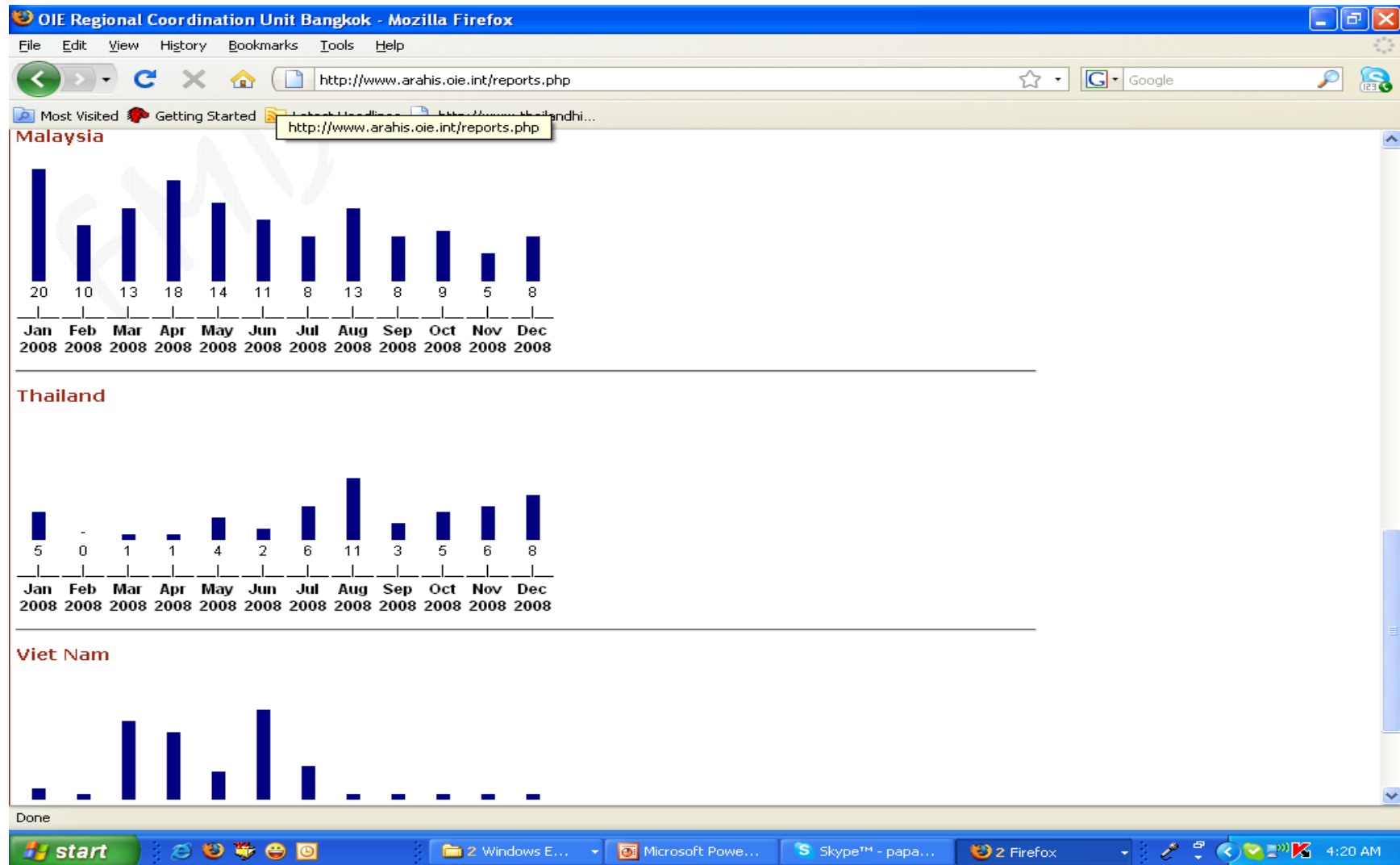


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- ✓ Private Sector Consultation
- ✓ Useful Links
- ✓ Site administration (password needed)

Tip of the Day

Looking for forms, import regulations, legislation? Search the Regional Resources from the main menu

SEAFMD Reporting



SEAFMD Reporting

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SEAFMD Reporting

OIE Regional Coordination Unit Bangkok - Report detail - Mozilla Firefox

http://www.arahis.oie.int/reports.php

World Organisation for Animal Health
Organización Mundial de Sanidad Animal

Thailand, Kingdom of Close Window

1) Outbreak ID: (43012)

Location	Tham, Kanthararom, SI SA KET	Serotype	O
Epidemiological Unit	Village No.2,6,11 (Village)	Epidemiological Comments	The affective animals were native cattles.
Start Date	27/07/2008	Affected Population	
End Date	31/08/2008		

Diagnosis	Current Control Measures	Future Control Measures	Source of Infection
No information available	<ul style="list-style-type: none"> • Movement control inside the country • Screening • Vaccination in response to the outbreak (s) • Disinfection of infected premises/establishment(s) • Quarantine • Zoning 		<ul style="list-style-type: none"> • Illegal movement of animals

Species	Susceptible	Cases	Died	Destroyed	Slaughtered
Cattle	383	40	0	0	0

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Done

Adobe Reader

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Vaccination (1)

- **Vaccine supply**
 - Commercial
 - Government vaccine production
 - Thailand has capacity for 25 Million doses/yr
 - Myanmar very minimal, only 200,000 doses/yr
 - Vietnam – has a reconstitution facility in partnership with a commercial vaccine company
- **Vaccine strain**
 - Commercial – use O Manisa and local strain of O, A Malaysia, and Asia 1 Shamir
 - Thailand – use local isolates of O, A and Asia 1
 - Myanmar – use local isolates of O and Asia 1

Vaccination (2)

- **Vaccination policy**
 - Thailand – nationwide mass vaccination
 - Malaysia – mass vaccination in priority areas
 - Vietnam – mass vaccination in priority areas
 - Cambodia, Lao PDR, and Myanmar – very limited supply; mainly used in response to outbreaks

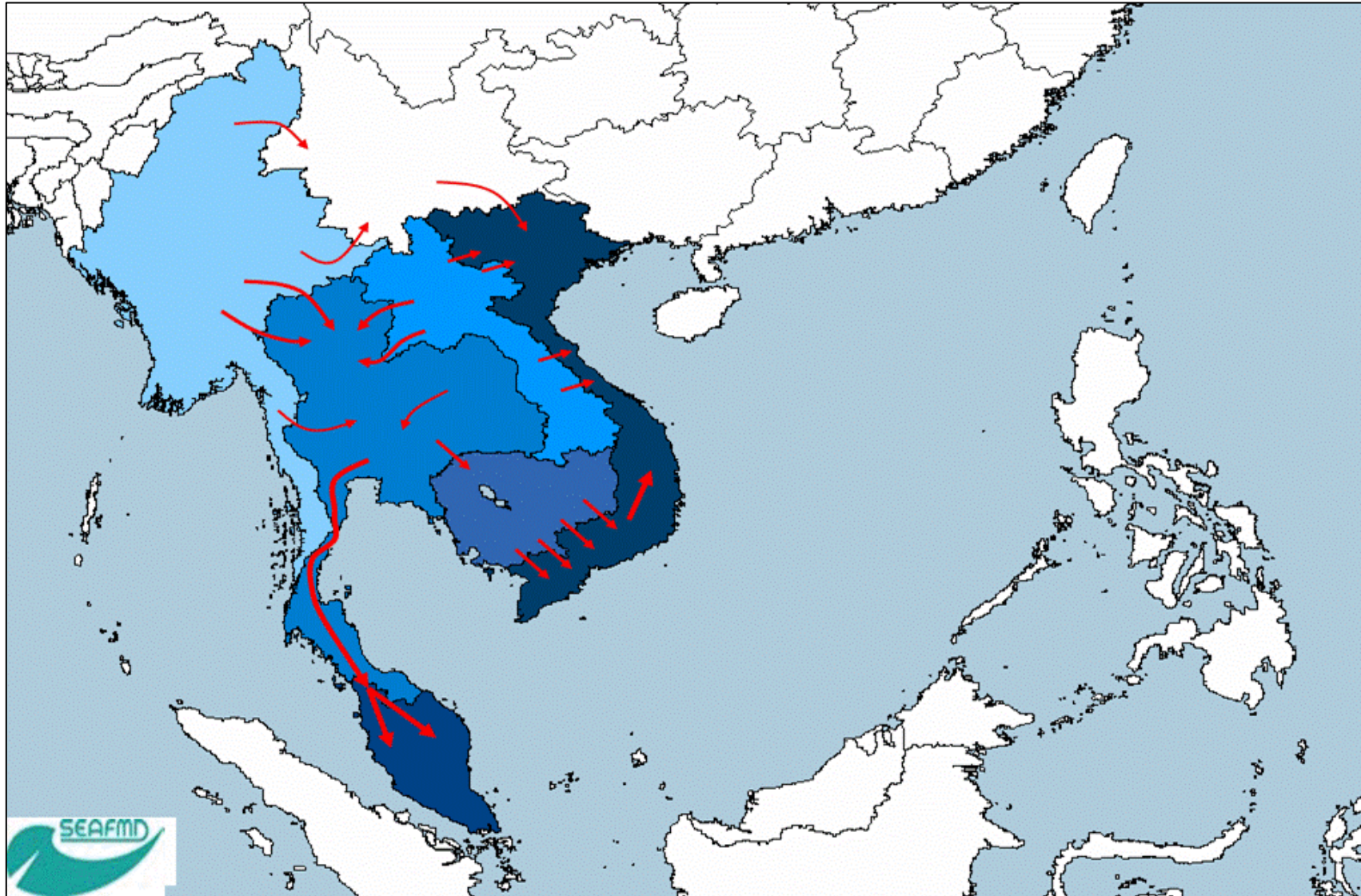
Animal Movement

- **Understanding animal movement patterns and its drivers**
 - (OIE SEAFMD is coordinating studies with ACIAR and FAO/ADB)
- **Main factors involved**
 - Price
 - Supply and demand
 - Population density

Cattle/Buffalo Trade vs. population and price

	Cattle (millions)	Buffalo (millions)	Import	Export	Comparative Unit Price Ranking	
Cambodia	3.34	0.72	-	+++	**	Moderate Low
Lao PDR	1.35	1.16	-	+++	**	Moderate Low
Malaysia	0.8	0.14	+++	-	*****	High
Myanmar	12.63	2.84	-	+++++	*	Low
Thailand	9.34	1.58	++	++	***	Moderate
Vietnam	6.88	3	+++	-	****	Moderate High

Cattle Movement

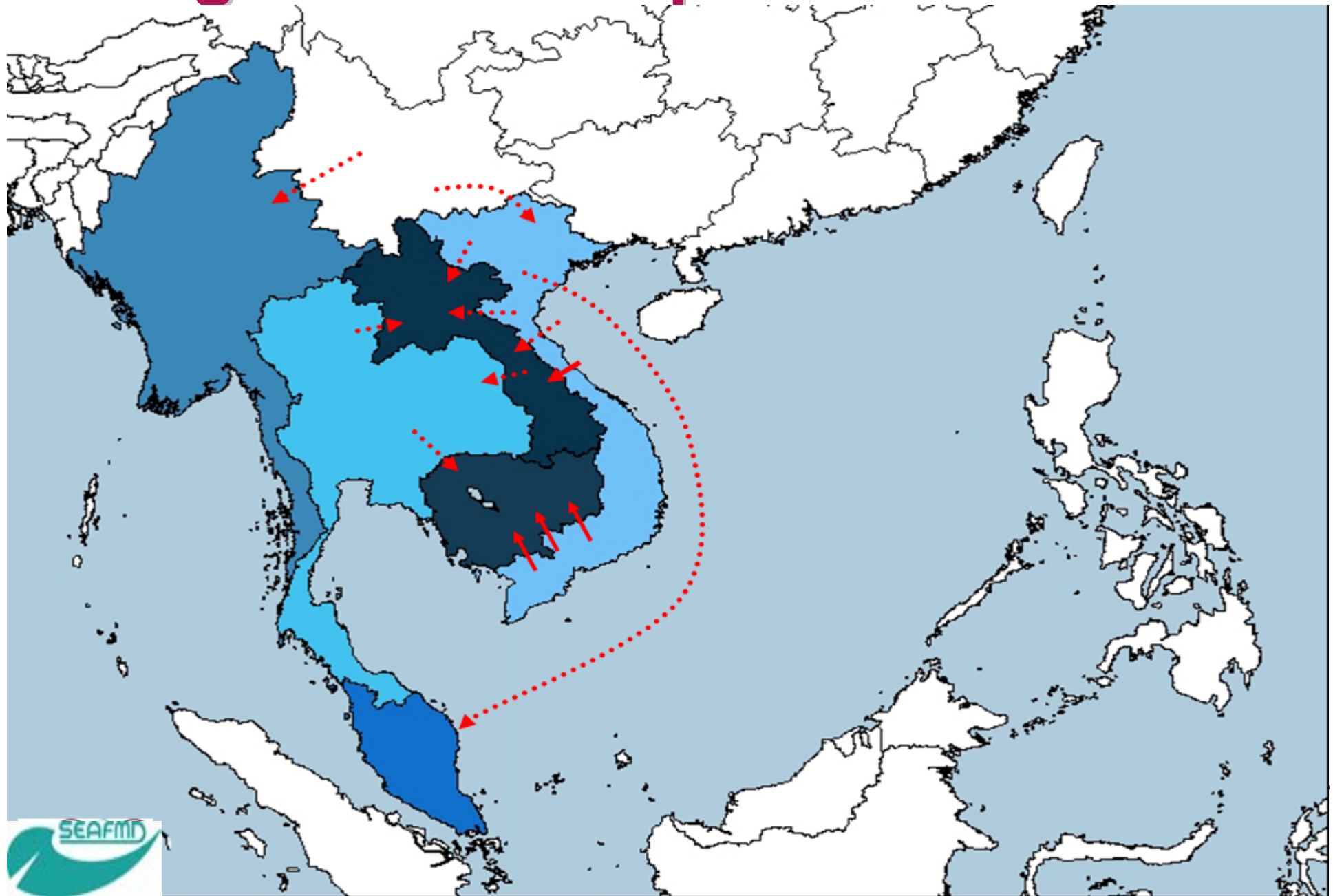


Pig Trade vs. population and price

	Pig (Millions)	Import	Export	Comparative Unit Price Ranking	
Cambodia	2.74	+++	-	****	Moderate
Lao PDR	1.97	++	-	***	Moderate
Malaysia	2.08	+	+	**	Moderate
Myanmar	6.95	+	-	**	Moderate
Thailand	9.31	+/-	++	**	Moderate Low
Vietnam	26.56	-	++++	*	Low

e

Pig and Frozen pork movement



Identify risk pathways

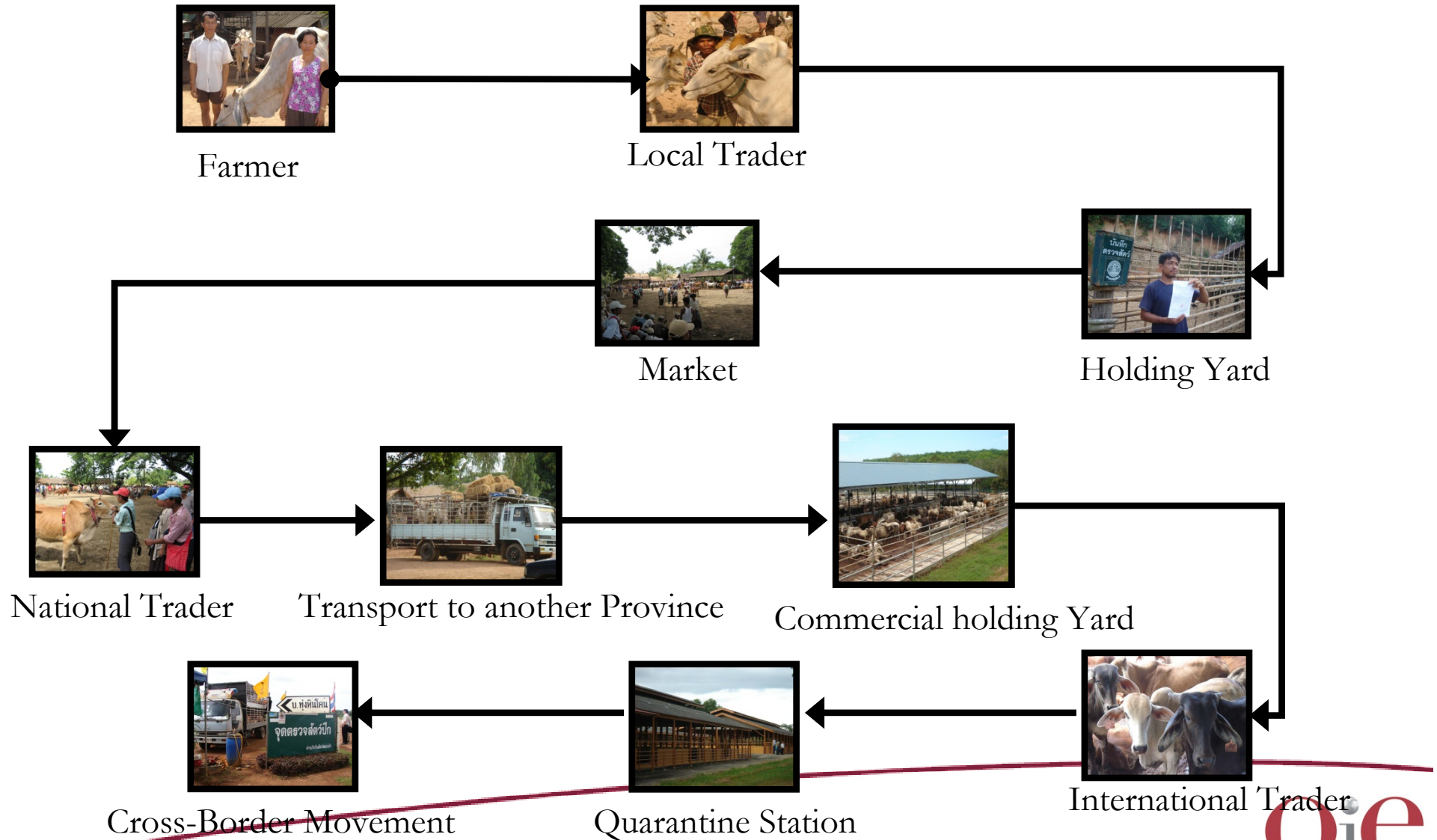
- Higher resolution to understand better the critical pathways
- Finding critical points and institute strategic interventions to reduce the spread of FMDV along the pathway
- Identify hotpots / foci of inspection
 - Disinfection campaign
- Ring Vaccination around high risk areas
- Targeted public awareness campaign to get support from key stakeholders

Animal movement studies

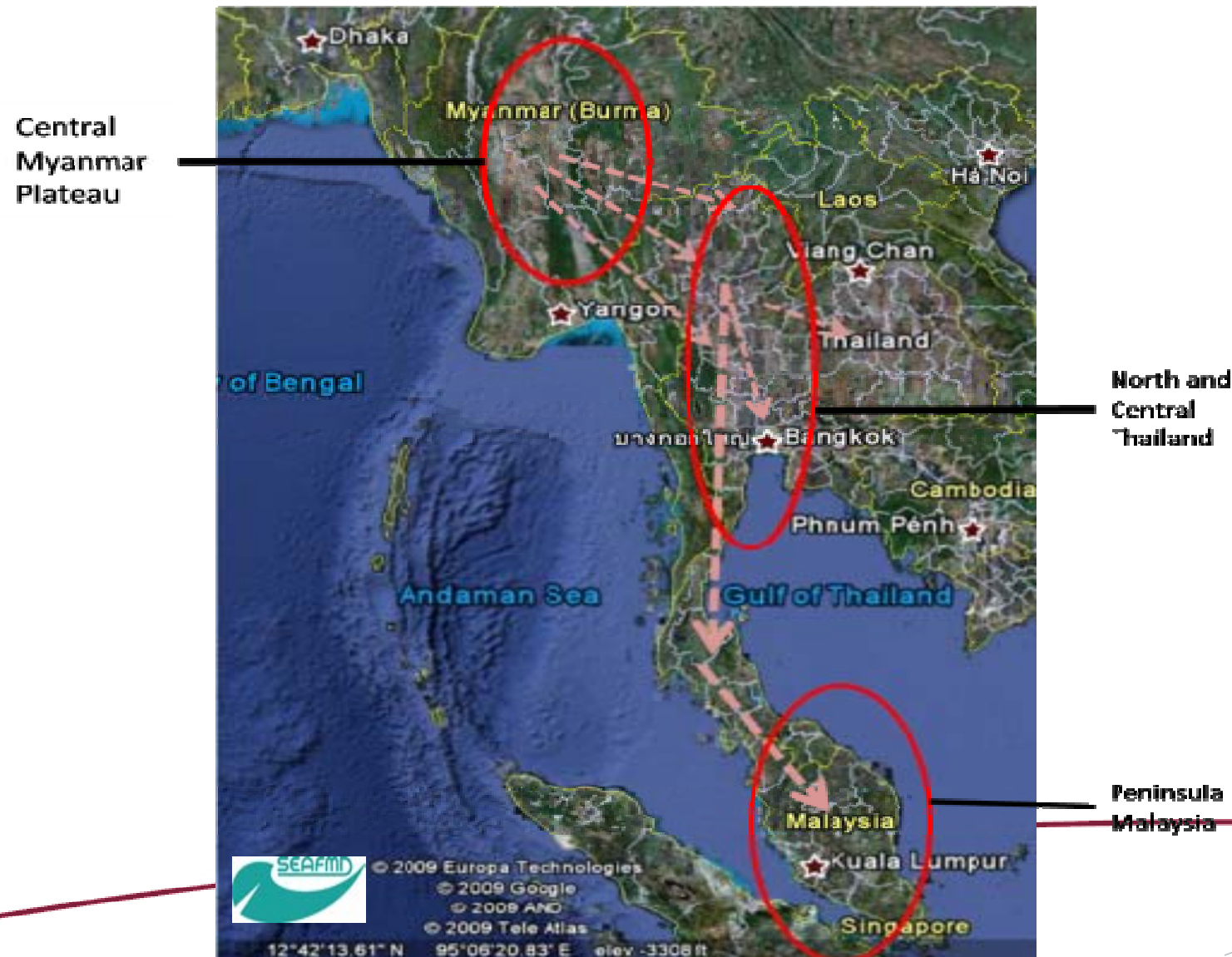
- **Network analysis**
- **Snowball sampling**
- **Participatory and semi-structured interviews**
- **Focus Group discussions**



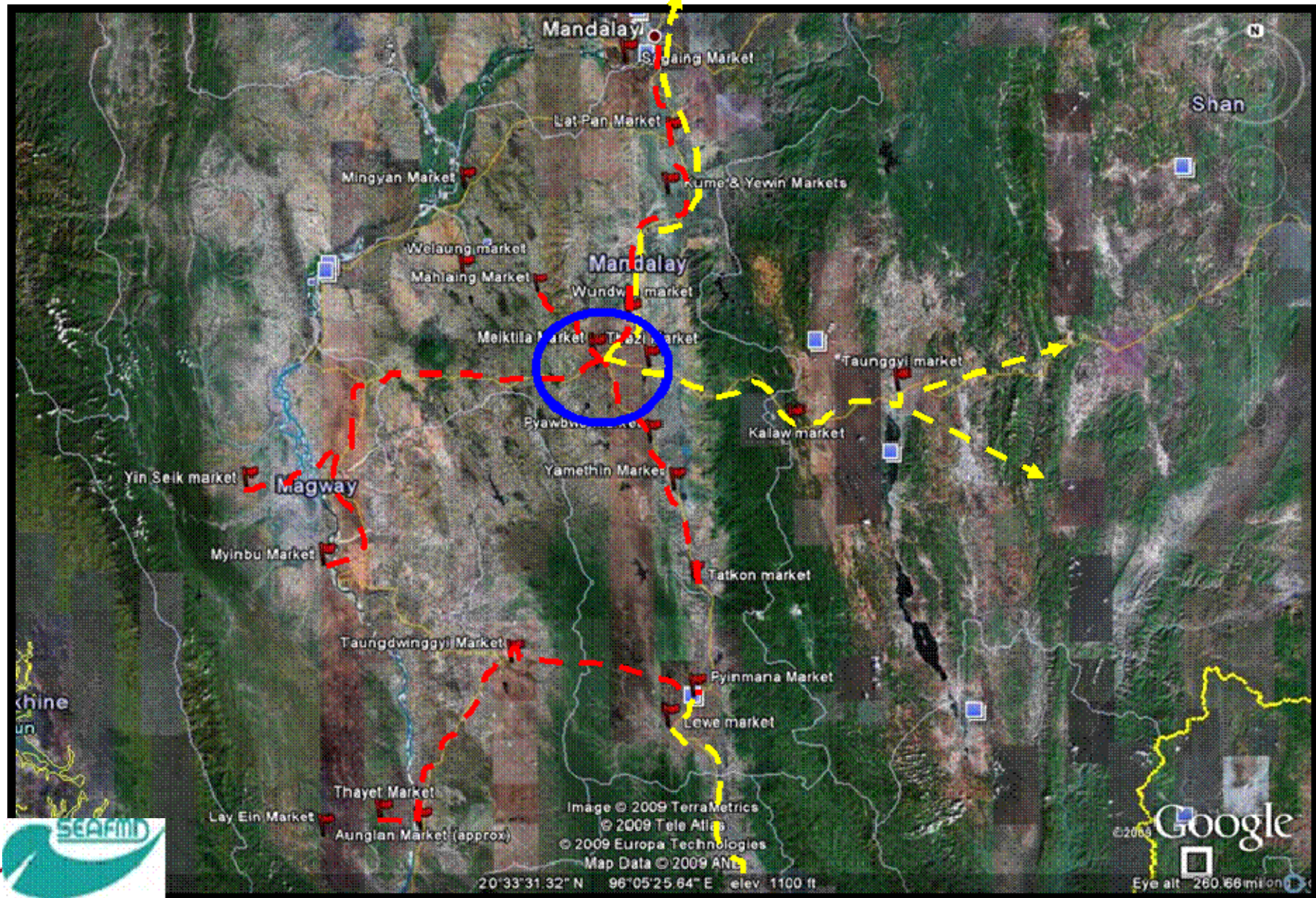
Risk Pathway for live cattle



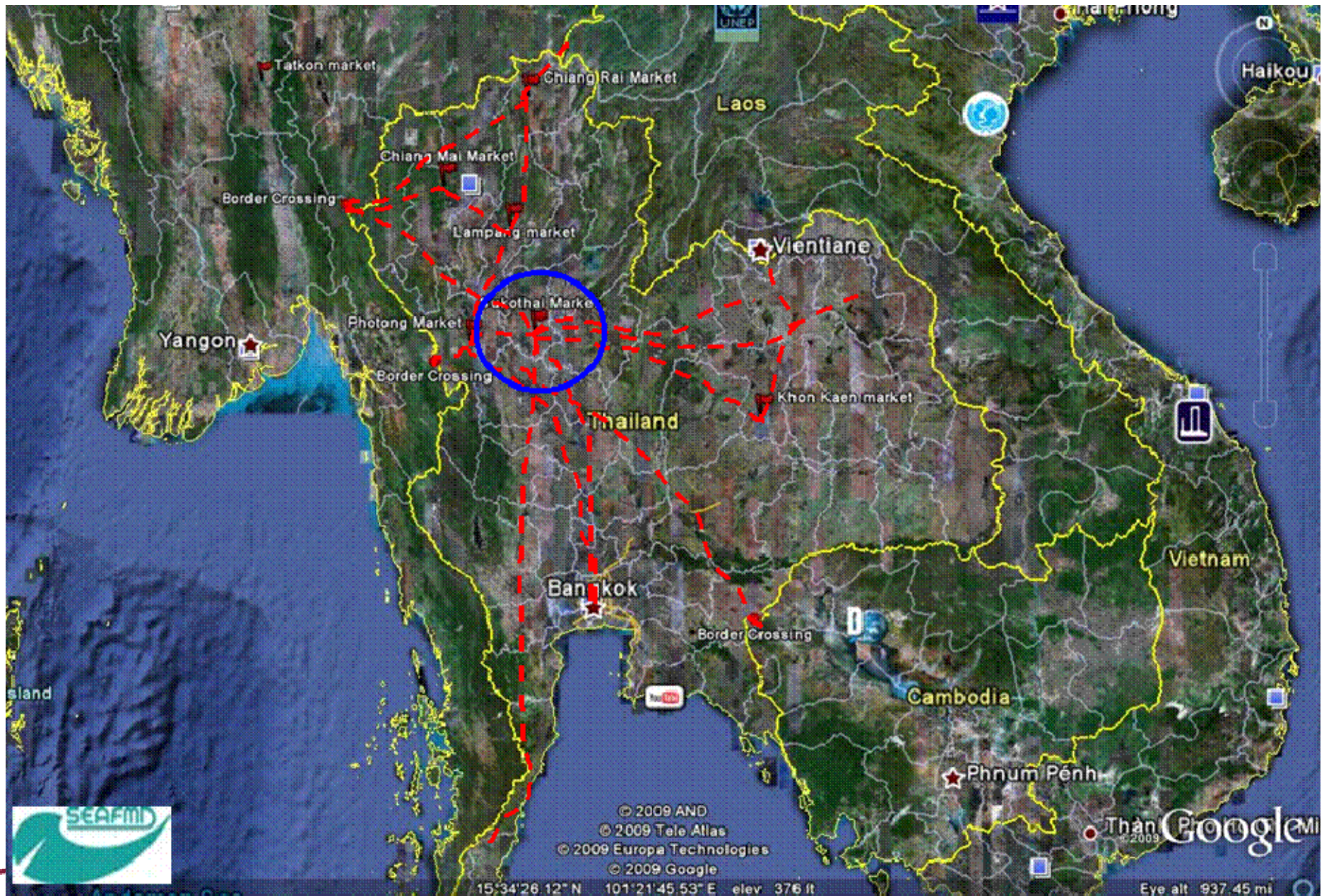
Cattle / Buffalo movement critical points



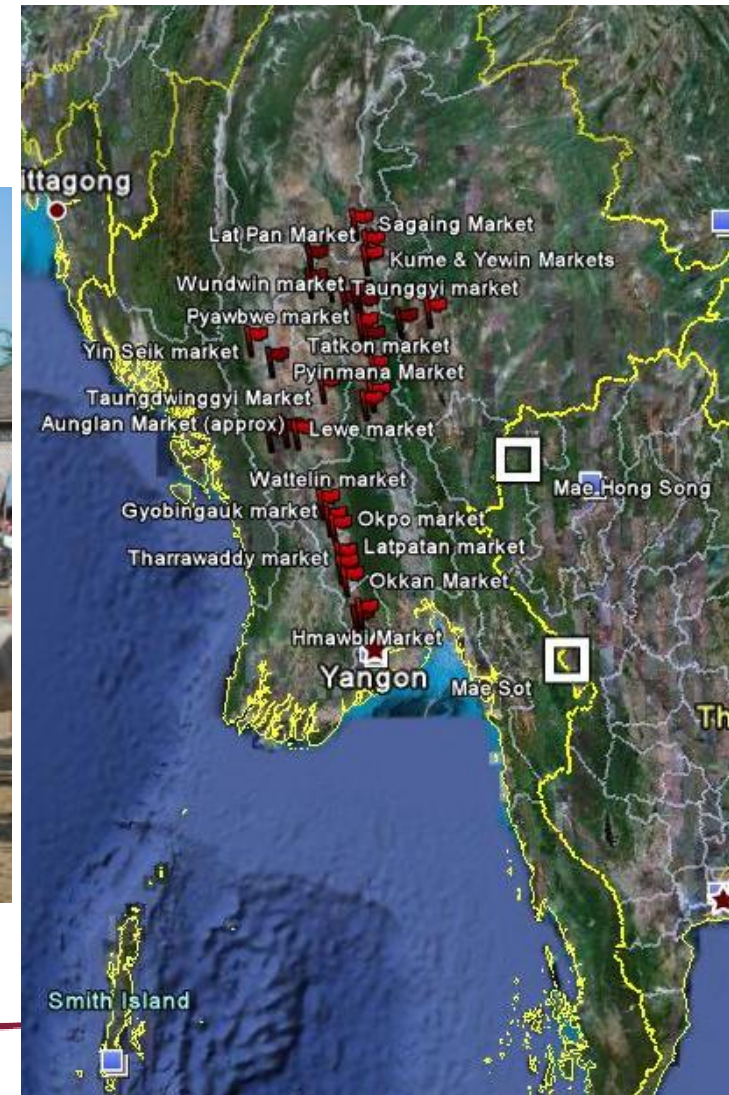
Central Myanmar Critical Point



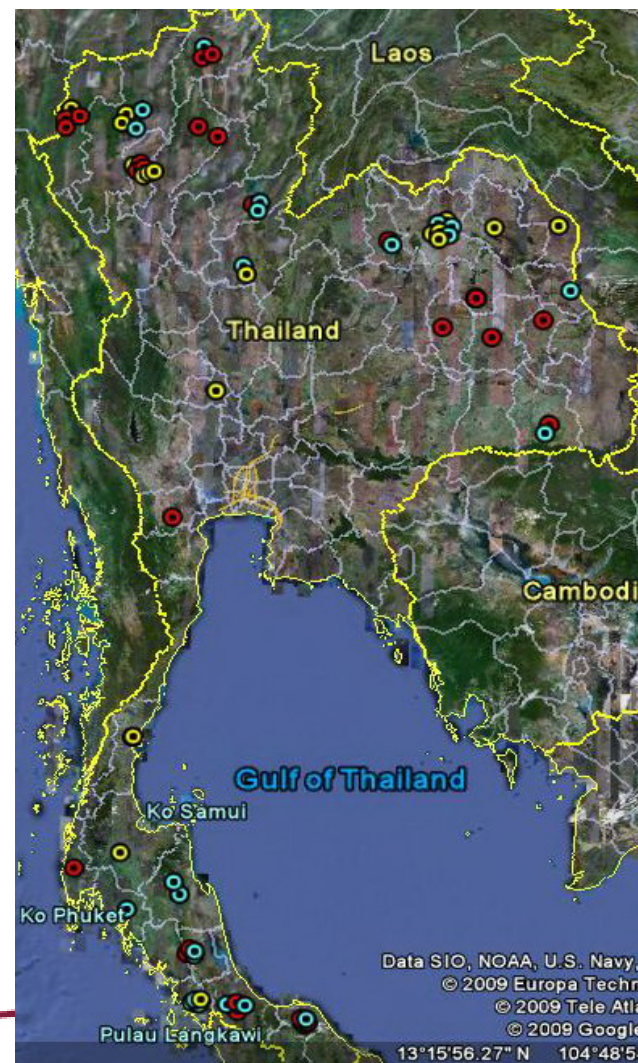
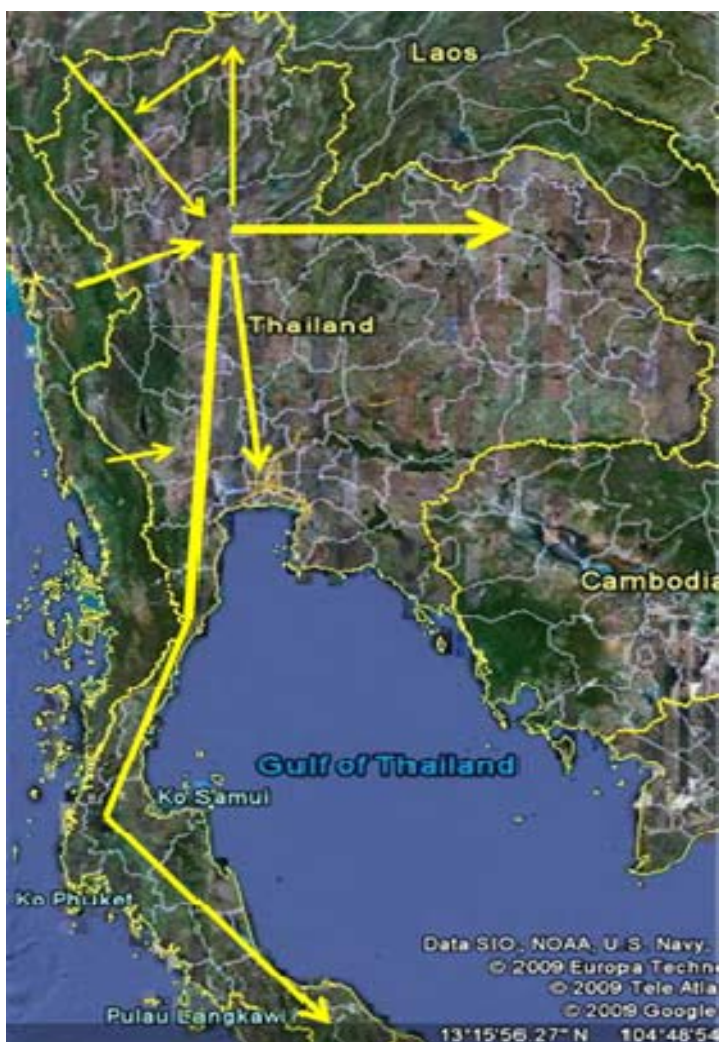
Northern Thailand Critical Point



Livestock Markets

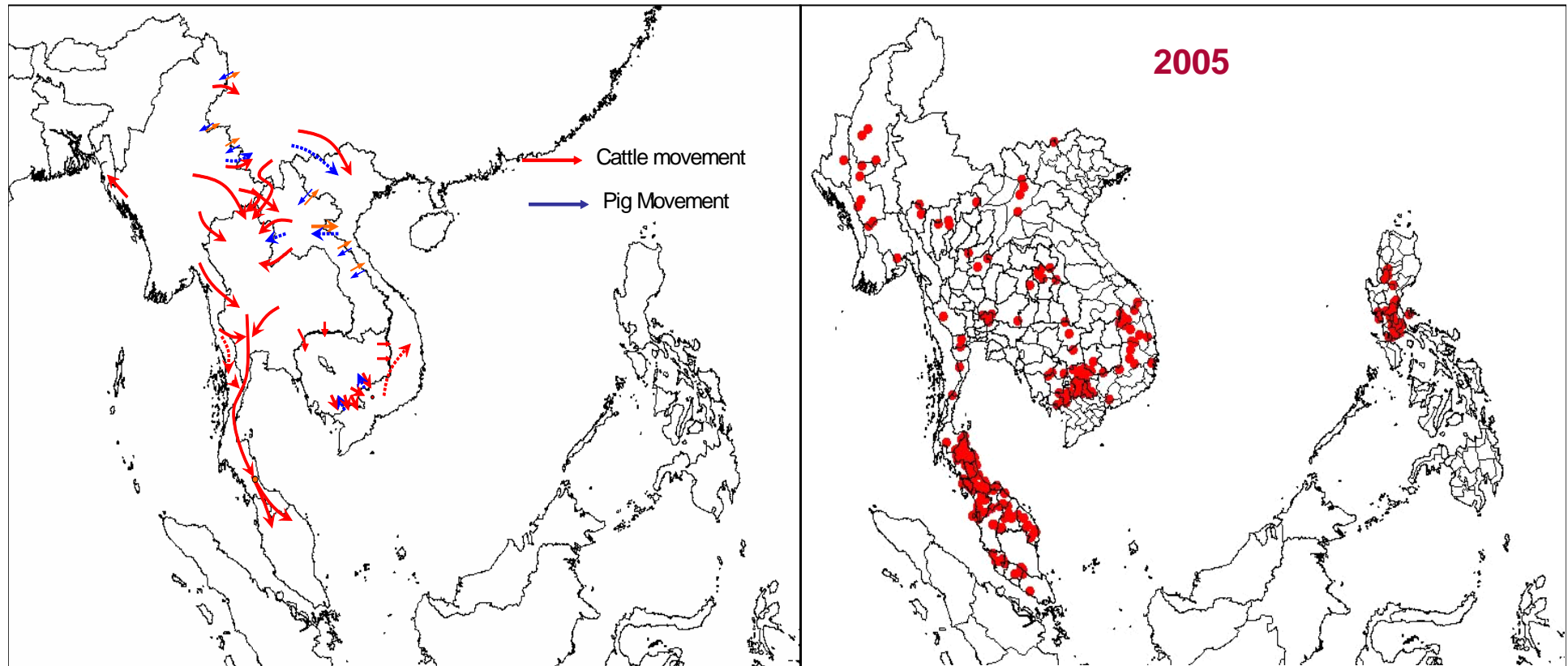


Animal movement vis-à-vis FMD outbreaks in 2008

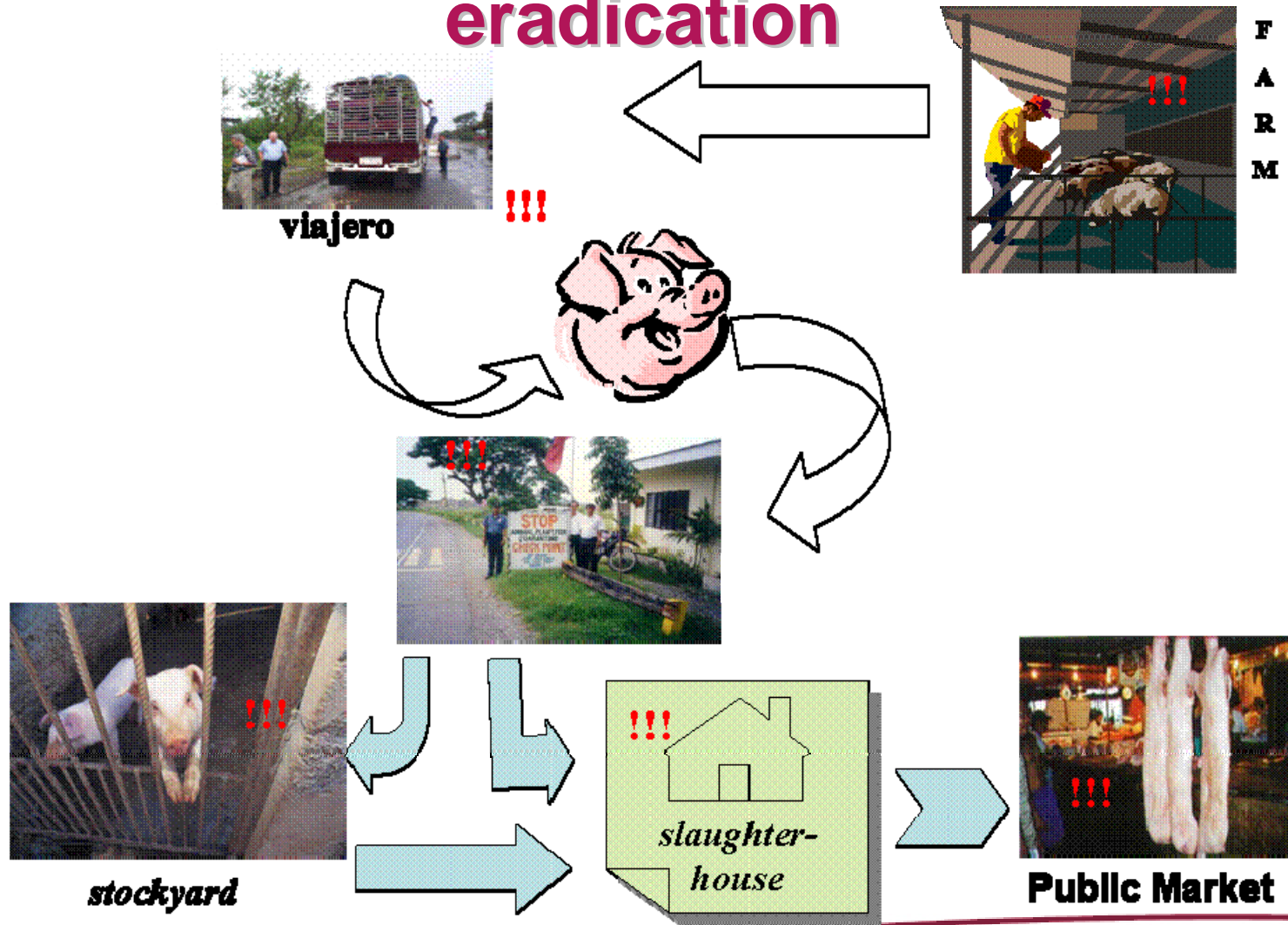


Red dot = Serotype 0; Blue dot = Serotype A; Yellow dot = untyped/not sampled.

Animal movement vis-à-vis FMD outbreaks in 2005



Strategic interventions at FMD critical points in the Philippines lead to its final eradication



The FMD Compliance Monitoring Team created in 2003



Monitoring high risk livestock establishments such as farms, slaughterhouses, auction markets, weighing stations, stockyards and *lechon* (roast pig) establishments



The FMD Compliance Monitoring Team

CMTs ensure stakeholder compliance to guidelines prescribed by BAI on animal movement and the 'All-In All-Out Policy' in slaughterhouses



The FMD Compliance Monitoring Team



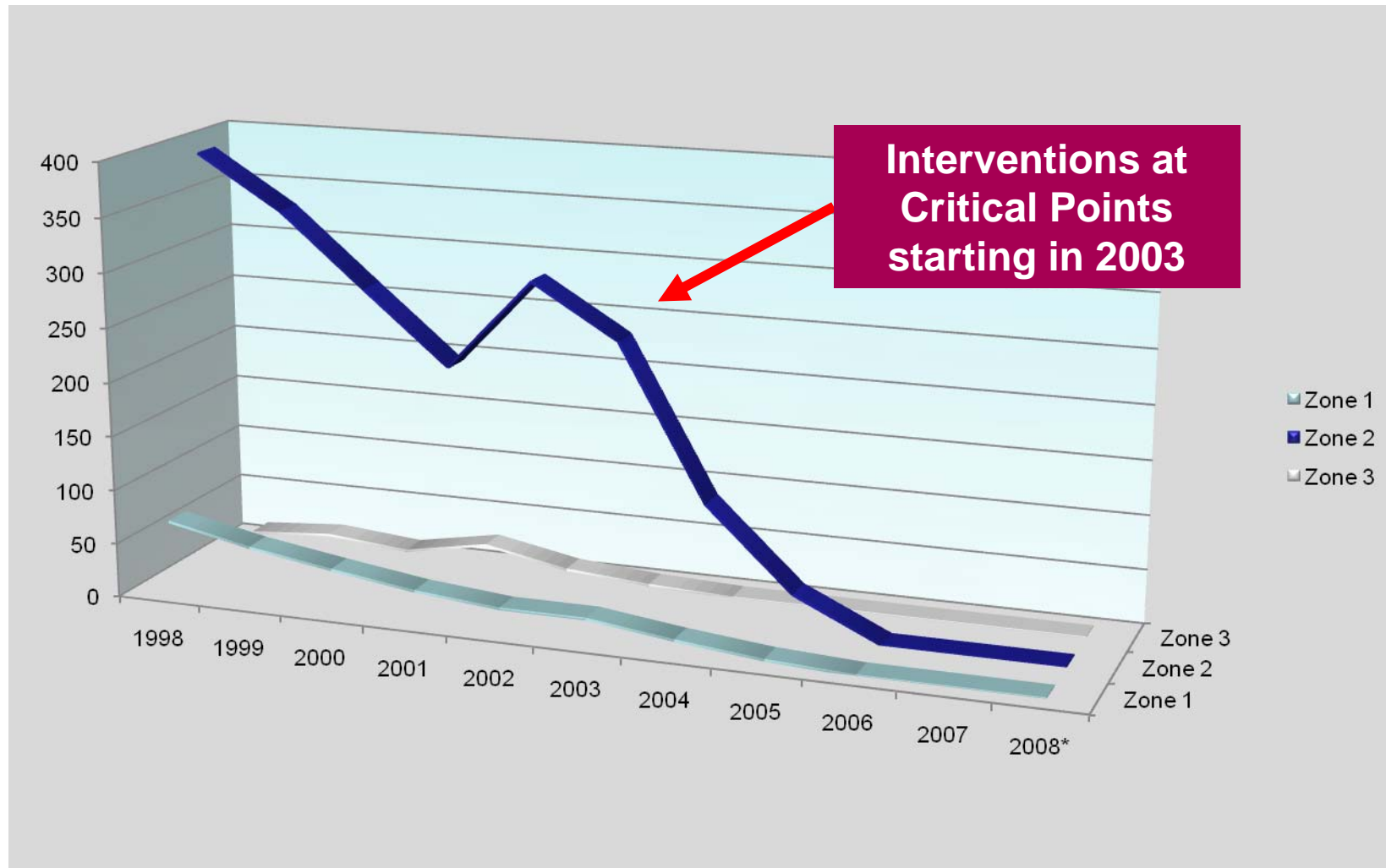
**CMTS ARE
MANDATED BY BAI
TO CONDEMN AND
DESTROY FMD
INFECTED**

The FMD Compliance Monitoring Team



A thorough cleaning and disinfection program is strictly implemented after every condemnation

FMD OUTBREAKS PER ZONE (1998 - 2008)



Communication and Public Awareness campaign

- **Mobilize stakeholder support to the program**
- **Promote public-private partnership**
- **Development SEAFMD communication strategy**
 - **key messages and communication materials for specific sector**

SEAFMD Communication Workshop





What's Inside?

- OI Training - Vietnam
- 10th National Coordinators Meeting
- Super Buffalo
- ASEAN HPAI Workshop
- Roundtable on Animal Health Communications
- GF Tads Meeting
- PSVS Launch
- Animal Welfare Meeting
- Private Sector and FMD
- GMS TADs Project
- Communication
- Activities in Cambodia
- Serological Survey
- Profile
- Coming Events



Editorial Outbreak Investigation

Good information from disease outbreaks is critical to enhance existing measures to control and eradicate diseases. Every disease outbreak should be studied well to get new information of any changes on the epidemiology of the disease. This is the reason why the SEAFMD, with support from the FAO/ADB GMS TADs Project, launched a series of Outbreak Investigation (OI) training for district veterinarians and para-professionals. It is envisioned that once the frontline field workers have good skills in OI they can gather good information that would be used for further analyses by national epidemiologists at the headquarters of the Veterinary Services (VS). Through this processes of getting good information and applying epidemiological tools for further analyses, the VS capacity to develop effective intervention measures attuned to the situation in the field will be strengthened.

It is not only gathering of information that is critical to good OI, but it is also equipping field staff with the proper skills in managing disease outbreaks. The field staff has to control the disease as soon as it occurs to prevent the outbreak from spreading, to immediately eradicate the disease agent, and restore the animal health status of affected villages. Every outbreak put under control is another step towards achieving the SEAFMD 2020 goal.



This publication is made available through the generous support of the Australian and New Zealand Governments

South-East Asia Foot and Mouth Disease Campaign

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SEAFMD NEWS



Welcome to the first SEAFMD E News - from the OIE Southeast Asia Foot and Mouth Disease Campaign (SEAFMD) Regional Coordination Unit, which is based in Bangkok, Thailand. This regular e-newsletter will bring you key events and updates for the Campaign as well as a regular brief on the current FMD situation in Southeast Asia.



Latest News

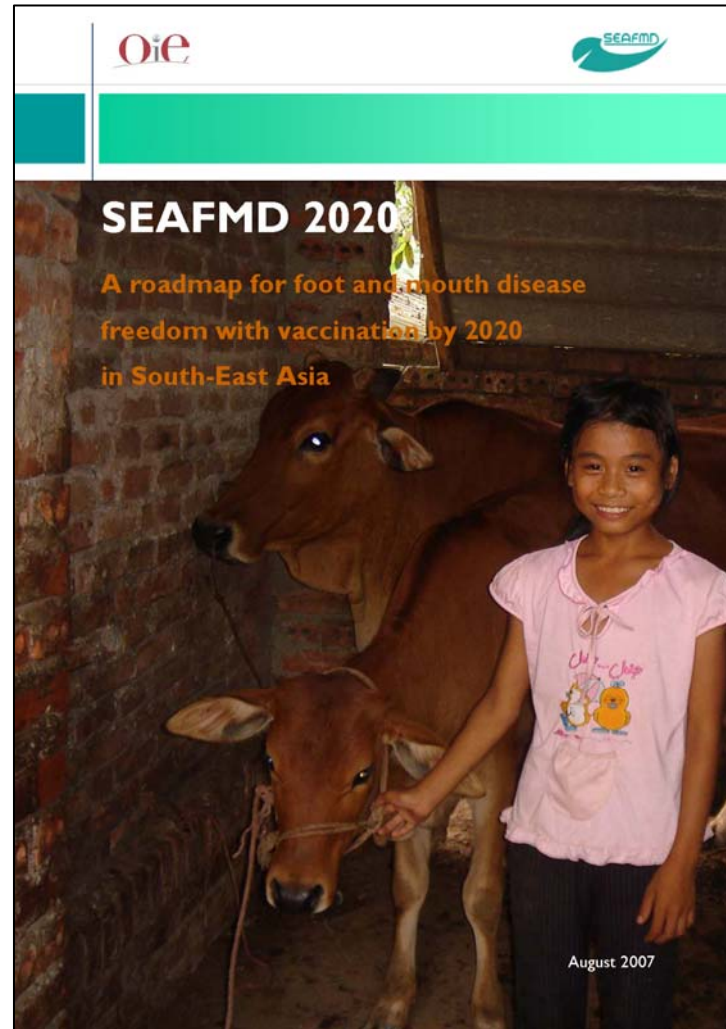
- Achieving SEAFMD 2020
- FMD at a Glance 2008
- 11th National Coordinators Meeting

Passion and scientific knowledge: essential elements in achieving SEAFMD 2020

(Excerpts from the Speech of Dr Ronello Abila, Regional Coordinator during the opening of the 11th SEAFMD National Coordinators Meeting, 27-29 August 2008)
 The recently held Beijing Olympics had the slogan: "One World, One Dream". The athletes competed to win not only because it is their goal, but because it is the passion from within that drives them. The full commitment to achieve an Olympic Gold drives them to sacrifice everything to win the Gold. We may not have quite such a level of passion as the Olympic athletes, but passion is essential achieving in whatever we aim for. And it's applicable to our aim of achieving SEAFMD 2020. But the question is - do we have that passion to achieve SEAFMD 2020? As leaders in FMD control and eradication in our countries, we should be the first to embrace such a passion. Because, if it's lacking, then how can we share with others our belief, our goal, our passion in eradicating FMD!



SEAFMD 2020 Roadmap



Acknowledgement

- SEAFMD Regional Coordination Unit
 - Dr Alexandre Bouchot
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 - Indonesia – Drs Agus Wiyono and Bagoes Poermadjaja
 - Lao PDR – Drs Phouth Inthavong and Syseng Khounsy
 - Myanmar – Drs Maung Maung Kyin and Kyin Maung Latt
 - Malaysia – Drs Periathamby Loganathan and Naheed Bin Mohamed Hussein
 - Philippines – Drs Reildren Morales and Victor Atienza
 - Thailand – Drs Prasit Chaitaweesub and Wacharapon Chotiyaputta
 - Vietnam – Drs Hoang Van Nam and Van Dang Ky

**Thank you for
your
attention**

