FMD Control in South East Asia: science based approach to development of roadmaps and PVS Tools to support capacity building

Ronello Abila
Sub-Regional Representative for SE Asia
OUTLINE

• SEACFMD Campaign
• SEACFMD 2020 Roadmap
• PVS Pathway
The South East Asia and China Foot and Mouth Diseases (SEACFMD) Campaign

Approved by the OIE General Assembly in May 25, 2010, PARIS
National Coordination

- FMD National Coordinator
  - LabNet focal point
  - EpiNet focal point
  - Communication focal point

FMD Control and Eradication
SEACFMD LabNet

- Sub-Commission recommended Pakchoing to become FMD RRL
- Opening of RRL in 2004
- 2010 recognised by OIE as FMD Reference Laboratory
- Harmonise diagnostic procedures in line with OIE standards
- Proficiency testing and quality assurance
Role of LabNet

• Rapid diagnosis of FMD viruses
  – Early detection and confirmation of FMD virus serotypes
  – Use of appropriate vaccine strain
• Facilitate sending of field isolates to Regional Reference Laboratory
• Strengthen surveillance
  – Molecular epidemiology
  – Mapping on the evolution of FMDV serotypes
Role of LabNet

• Capacity building on FMD diagnosis
  – Exchange visits of experts
  – Regular training programs
• Harmonization of diagnostic protocols
• Quality assurance system
• Facilitate research activities
  – Prioritize areas for research (eg. role of carrier)
  – Joint research studies
  – Develop proposals for possible funding
Role of EpiNet

- develop a standardised set of protocols for FMD surveillance in the SEAFMD campaign
- a definition of an outbreak for SEAFMD and a case definition
- suggested minimum requirements for regional reporting
Role of EpiNet

- FMD reporting to SEAFMD RCU
- Analysis FMD data in the sub-region
- Design and facilitate implementation of surveillance activities
- Training on outbreak investigation, disease, information systems, surveillance and other epidemiological tools
# SEAFMD Reporting System (1999)

## OIE SEAFMD Regional Foot and Mouth Disease Monthly Outbreak Report

<table>
<thead>
<tr>
<th>Country</th>
<th>Month</th>
<th>Year</th>
<th>Name of Sender</th>
<th>Position</th>
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<th>Fax</th>
<th>Email</th>
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<tr>
<th>Outbreak ID.</th>
<th>Admin I (e.g. Province)</th>
<th>Admin II (e.g. District)</th>
<th>Admin III (Subdistrict)</th>
<th>Village</th>
<th>Longitude</th>
<th>Latitude</th>
<th>Date of first case</th>
<th>New / Ongoing</th>
<th>Resolved?</th>
<th>Type of Diagnosis</th>
<th>Number of Samples Submitted</th>
<th>Virus serotype</th>
<th>Epidemiological Findings</th>
<th>Control Measures Implemented</th>
<th>Species</th>
<th>Susceptible</th>
<th>Cases</th>
<th>Deaths</th>
<th>Destroyed</th>
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</table>

Total outbreaks: [ ]
Total new outbreaks: [ ]
Total ongoing outbreaks: [ ]
Total resolved outbreaks: [ ]

Signature of Sender: ___________________________

Notes: ___________________________
SEAFMD Reporting System

OIE SEAFMD Monthly Outbreak Report

<table>
<thead>
<tr>
<th>Report Country</th>
<th>Myanmar</th>
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</thead>
<tbody>
<tr>
<td>Report Month / Year</td>
<td>9 2004</td>
</tr>
<tr>
<td>Coordinates</td>
<td>Longitude: 95</td>
</tr>
<tr>
<td>Latitude: 18</td>
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</table>

Outbreak ID: 04/035

Outbreak Location
- Province: Ayeyarwaddy
- Admin2: Hinthada
- Admin3: Myan Aung
- Village: 2

Outbreak Details
- Date of First Case: 10/9/2004
- New outbreak? Yes
- Resolved?
- Diagnosis Type: CD
- Serotype: Not Sampled

Livestock Numbers

<table>
<thead>
<tr>
<th>Species</th>
<th>Susceptible</th>
<th>Cases</th>
<th>Deaths</th>
<th>Destroyed</th>
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OIE Sub-Regional Representation for South East Asia, Bangkok, Thailand
Started 2002
ASEAN Regional Animal Health Information System

Welcome to the ARAHIS system

This system is intended for the use of authorised representatives of members of ASEAN countries, for the purpose of sharing timely information on livestock diseases, to improve regional disease control.

To ensure the integrity of the disease information managed by the system, access is restricted by password.

This system has been developed with the cooperation of the ASEAN sectoral working group on livestock, and with support from the Australian Government (AusAID), OIE (head office in Paris, regional office in Tokyo, and regional coordination unit in Bangkok) and ACIL. The system builds on and extends the functions of existing regional animal health information systems, including the OIE’s South East Asian Foot and Mouth Disease campaign and the Animal Health and Production Information System for ASEAN (AHPISA).

User Feedback
Email the development team if you have a comment on this system.

ARAHIS Regional Animal Health Information System (ARAHIS)
Developed by AusVet Animal Health Services
As part of the AusAID funded “Strengthening Animal Health Management and Biosecurity in ASEAN” (SAHMB) project
With the participation of ASEAN SWGL, OIE, SEAFMD, AHPISA, Cardno-Acil, and the OIE Tokyo Regional Office.
Thailand, Kingdom of

1) Outbreak ID: 09/020 (44466)

<table>
<thead>
<tr>
<th>Location</th>
<th>Serotype</th>
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</thead>
<tbody>
<tr>
<td>Banjerd, KuKaeo, UDON THANI</td>
<td>A</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Epidemiological Unit</th>
<th>Epidemiological Comments</th>
<th>Affected Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Village no.5 (Village)</td>
<td>The affected native cattle</td>
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<table>
<thead>
<tr>
<th>Start Date</th>
<th>End Date</th>
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<tbody>
<tr>
<td>16/02/2009</td>
<td>03/03/2009</td>
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<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Current Control Measures</th>
<th>Future Control Measures</th>
<th>Socio-Economic Impact</th>
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</thead>
<tbody>
<tr>
<td>No information available</td>
<td>• Movement control inside the country</td>
<td>• Disinfection of infected premises/establishment(s)</td>
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<tr>
<td></td>
<td>• Screening</td>
<td>• Vaccination in response to the outbreak(s)</td>
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<tr>
<td></td>
<td>• Dipping / Spraying</td>
<td>• Zoning</td>
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<table>
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FMDV in Pool 1

Pool 1
0, A, Asia 1
## FMD viruses in Pool 1

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<th>Serotype</th>
<th>Topotype</th>
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<tbody>
<tr>
<td>O</td>
<td>South East Asia</td>
<td>Myanmar 98 and Cambodia 94; endemic in SE Asia: reported in China, Korea and Japan in 2010</td>
</tr>
<tr>
<td></td>
<td>Pan Asia</td>
<td>detected SE Asia in late 1990s</td>
</tr>
<tr>
<td></td>
<td>Cathay</td>
<td>1st detected in Hong Kong in early 1990s</td>
</tr>
<tr>
<td>A</td>
<td>Asian</td>
<td>Indigenous in SE Asia; reported in China and Korea in 2010</td>
</tr>
<tr>
<td>Asia 1</td>
<td>Asian</td>
<td>Last reported in 2007</td>
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## FMD serotypes in Southeast Asia

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</table>

Reference: SEACFMD Monthly Outbreak Report
FMD Distribution
Research Agenda

• Understanding the market chains of different species and livestock products
• Understanding the spatial and temporal distribution of FMD serotypes and its determinants
• Define effective vaccination strategy and examine cost effectiveness of different vaccination strategies
• Investigating the roles of different species in the epidemiology and transmission of FMD in SE Asia
• Comparative studies on disease control management strategies (including policies, regulation) from different countries in SE Asia
Use of FMD history as an indicator of FMD-affected village

- Significant association between the FMD history in the village and NSP results
- Cost-effective tool for prevalence estimation of FMD-affected villages in large area/zone
- Dependent on disease recognition by farmers and animal health workers or good database records
- Sensitive to information/recall bias
UM control zone: Prevalence of FMD-affected villages

NSP results: 26% (14, 43)

Prior distribution: 34% (24, 44)

Posterior distribution: Prevalence = 33% (24, 42)
FMD Case study Lao PDR: XK Province

BACKGROUND:

- FMD Vaccination as part of ACIAR project in Dec. 2008 in 2 project villages (type O,A, Asia1)
- FMD outbreak in XK province in Jan 2009 (O-SEA)
- Reduced mortality and morbidity reported in vaccinated villages
- Retrospective case study in February/March 2009
Limiting the impacts of FMD in lrg. Ruminants in northern Lao PDR by vaccination: a case study

RESULTS:

- Mortality & Morbidity rates in 4 case study villages
SEACFMD 2020 Roadmap
Background

• Changes in the epidemiology of FMD viruses
  – Predominant outbreaks of type O (Myanmar 98)
  – Need to closely monitor other strains (absence of Asia 1)

• New developments of the socio-economic dimensions
  – Increasing demands in China, Malaysia and Vietnam
  – More roads, faster transport

• Changes of animal production systems
SEACFMD 2004
SEACFMD 2011
New SEACFMD Roadmap
2020 Strategies

First Strategy

• Reduce FMD prevalence by targeting hotspots and critical points
  – Decreasing the prevalence ‘at source` and critical points along the animal movement pathways

• Hotspots = foci, endemic source

• Critical points = amplification point
Districts with FMD outbreaks 2007-2009
Districts with FMD outbreaks 2007-2009
Animal movement pattern
Animal movement critical points and FMD Hotspots
New SEACFMD Roadmap
2020 Strategies
Second Strategy

• Pursue zoning in the most advanced area of FMD control
  – Set up control/eradication zones in priority areas once disease incidence decreased to low levels and the likelihood of recurrence is reduced.
FMD Zones in SE Asia and China
New SEACFMD Roadmap
2020 Strategies

Third Strategy

• Maintain and expand FMD free zones
  – Zones which are currently free will be protected by increasing the focus on quarantine and movement management at zone or countries borders.
Maintenance and Expansion of FMD Free zones
Roadmap Tools

- Risk based approach
- Vaccination as a primary means to reduce prevalence and cut-down transmission
- Surveillance network enhancing early detection
- Laboratory support for rapid diagnosis
- Animal movement management
- Communication and public awareness
- Support of private sector and other stakeholder
- Policy advocacy
Minimum Standards, definition and Rules (SDR)

- First endorsed in 2004, revised in 2008
- Provide step by step approach to achieve progressive zoning in the MTM
Appendix 2: ZONE PROGRESSION

CONTROL ZONE

No FMD outbreaks at time of application

ERADICATION ZONE

No FMD outbreaks for 2 years
No FMDV infection for 12 months

FREE ZONE WITH VACCINATION

No FMDV infection for 12 months
No vaccination for 12 months OR
No FMD outbreak for 12 months
No introduction of vaccinated animals for 12 months

FREE ZONE WITHOUT VACCINATION

Not in the OIE Code, The SDR provide guidance to achieve FMD freedom

OIE Recognition for the whole country or zone
PCP and OIE Endorsement of Official FMD Control Programmes

OIE Recognition of FMD free with or without vaccination

OIE Endorsement of Official FMD control programmes
PCP and SEACFMD 2020

1st Strategy: Reduction of FMD prevalence by targeting hotspots and critical points

2nd Strategy: Progressive zoning

3rd Strategy: Maintenance and expansion of FMD free zones

- Stage 0: Identify risk and control options
  - FMD risk not controlled. No reliable information
  - FROM 0 to 1: Comprehensive study of FMD epidemiology planned

- Stage 1: Implement risk-based control
  - FROM 1 to 2: Risk-based FMD control plan
  - FROM 2 to 3: Develop aggressive strategy to eliminate FMD
  - No endemic FMD in domestic livestock

- Stage 2: Implement control strategy to eliminate circulation
  - FROM 2 to 3

- Stage 3: Maintain zero circulation & incursions
  - FROM 3 to 4
  - Maintains zero circulation & incursions; withdraw vaccination
  - Apply for official status (OIE): 'free WITHOUT vaccination'

- Stage 4: Maintain zero circulation & incursions; withdraw vaccination
  - FROM 4 to 5

- Stage 5: Free without vaccination
  - Maintain zero circulation & incursions; withdraw vaccination
  - Apply for official status (OIE): 'free WITHOUT vaccination'
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Capacity building for VS

OIE PVS Pathway: collaborating with governments, stakeholders and donors
+ Aquatic Animal Health Services

http://www.oie.int/eng/oie/organisation/en_vet_eval_tool.htm?e1d2
OIE PVS Tool

Chapter 3.1. – Veterinary Services

Chapter 3.2. – Evaluation of Veterinary Services

a tool for Good Governance of Veterinary Services
• Several critical competencies in each fundamental component

• The fifth edition (released in 2010) includes critical competencies for:
  – management systems;
  – animal welfare; and
  – evaluation of the performance of Aquatic Animal Health Services (as part of a PVS evaluation of Veterinary Services, or as an independent exercise).

• Now 46 critical competencies in total
OIE PVS Tool

✔ 5 levels of advancement (qualitative) for each critical competency

✔ A higher level assumes compliance with all preceding levels

In the 2010 - 5th edition: suggested indicators and sources of verification were updated throughout
The OIE PVS Tool

4 Fundamental Components

- Human, physical and financial resources
- Technical authority and capability
- Interaction with stakeholders
- Access to markets
## CHAPTER II - Technical authority and capability

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<tr>
<th>Section II-n</th>
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<tr>
<td>II-1</td>
<td>Veterinary laboratory diagnosis</td>
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<td><strong>II-3</strong></td>
<td>Risk analysis</td>
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<td>II-4</td>
<td>Quarantine and border security</td>
</tr>
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<td>II-5</td>
<td>Epidemiological surveillance</td>
</tr>
<tr>
<td>II-6</td>
<td>Early detection and emergency response</td>
</tr>
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<td>II-7</td>
<td>Disease prevention, control and eradication</td>
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<td>II-8</td>
<td>Food safety</td>
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<td>II-9</td>
<td>Veterinary medicines and biologicals</td>
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<td>Technical innovation</td>
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<td>II-13</td>
<td>Identification and traceability</td>
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<tr>
<td>II-14</td>
<td>Animal welfare</td>
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### II-5 Epidemiological surveillance

The authority and capability of the VS to determine, verify and report on the sanitary status of the animal populations under their mandate.

#### A. Passive epidemiological surveillance

<table>
<thead>
<tr>
<th>Levels of advancement</th>
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<tbody>
<tr>
<td>1. The VS have no passive surveillance programme.</td>
</tr>
<tr>
<td>2. The VS conduct passive surveillance for some relevant diseases and have the capacity to produce national reports on some diseases.</td>
</tr>
<tr>
<td>3. The VS conduct passive surveillance in compliance with OIE standards for some relevant diseases at the national level through appropriate networks in the field, whereby samples from suspect cases are collected and sent for laboratory diagnosis with evidence of correct results obtained. The VS have a basic national disease reporting system.</td>
</tr>
<tr>
<td>4. The VS conduct passive surveillance and report at the national level in compliance with OIE standards for most relevant diseases. Appropriate field networks are established for the collection of samples and submission for laboratory diagnosis of suspect cases with evidence of correct results obtained. Stakeholders are aware of and comply with their obligation to report the suspicion and occurrence of notifiable diseases to the VS.</td>
</tr>
<tr>
<td>5. The VS regularly report to stakeholders and the international community (where applicable) on the findings of passive surveillance programmes.</td>
</tr>
</tbody>
</table>
### II-6 Early detection and emergency response

The authority and capability of the VS to detect and respond rapidly to a sanitary emergency (such as a significant disease outbreak or food safety emergency).

<table>
<thead>
<tr>
<th>Levels of advancement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The VS have no field network or established procedure to determine whether a sanitary emergency exists or the authority to declare such an emergency and respond appropriately.</td>
</tr>
<tr>
<td>2. The VS have a field network and an established procedure to determine whether or not a sanitary emergency exists, but lack the necessary legal and financial support to respond appropriately.</td>
</tr>
<tr>
<td>3. The VS have the legal framework and financial support to respond rapidly to sanitary emergencies, but the response is not coordinated through a chain of command.</td>
</tr>
<tr>
<td>4. The VS have an established procedure to make timely decisions on whether or not a sanitary emergency exists. The VS have the legal framework and financial support to respond rapidly to sanitary emergencies through a chain of command. They have national contingency plans for some exotic diseases.</td>
</tr>
<tr>
<td>5. The VS have national contingency plans for all diseases of concern through coordinated actions with all stakeholders through a chain of command.</td>
</tr>
</tbody>
</table>
II-7 Disease prevention, control and eradication

The authority and capability of the VS to actively perform actions to prevent, control or eradicate OIE listed diseases and/or to demonstrate that the country or a zone are free of relevant diseases.

<table>
<thead>
<tr>
<th>Levels of advancement</th>
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<tbody>
<tr>
<td>1. The VS have no authority or capability to prevent, control or eradicate animal diseases.</td>
</tr>
<tr>
<td>2. The VS implement prevention, control and eradication programmes for some diseases and/or in some areas with little or no scientific evaluation of their efficacy and efficiency.</td>
</tr>
<tr>
<td>3. The VS implement prevention, control and eradication programmes for some diseases and/or in some areas with scientific evaluation of their efficacy and efficiency.</td>
</tr>
<tr>
<td>4. The VS implement prevention, control and eradication programmes for all relevant diseases but with scientific evaluation of their efficacy and efficiency of some programmes.</td>
</tr>
<tr>
<td>5. The VS implement prevention, control and eradication programmes for all relevant diseases with scientific evaluation of their efficacy and efficiency consistent with relevant OIE international standards.</td>
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The PVS Gap Analysis
A PVS Gap Analysis mission

• A PVS Gap Analysis mission facilitates the definition of country’s Veterinary Services’ objectives in terms of compliance with OIE quality standards, suitably adapted to national constraints and priorities.

• The country PVS Gap Analysis report includes an indicative operational budget for 5 years and an exceptional budget (necessary investments) when relevant.
PVS Gap Analysis - Budget -

Outputs
- Total budget
- Analysis of the budget

Inputs
- Unit costs

Cost Estimation Cards
- Trade1, Trade2, AH1, AH5, VPH1, VPH4, Lab1, Lab2, MVS1, MVS21

Trade (8 cards)
Animal Health (5 cards)
Veterinary Public Health (4 cards)
Veterinary Laboratories (2 cards)
Management and Services (21 cards)
PVS Gap Analysis

• To determine and confirm country priorities

• To identify specific activities, tasks and resources required to address “gaps” identified through the country PVS evaluation

• Estimation of costs / Preparation of a 5-year budget

• Review of Veterinary Services Strategic Plan

• Support to preparation of investment programmes
Using the PVS Gap Analysis

- **How and What to finance** is a sovereign decision of the country

- The Country’s Government decides if this is kept for internal use (government funding) or shared with Donors and relevant International Organisations to prepare investment programmes
Using the PVS Gap Analysis

• In country discussions with line Minister, other Ministries, Ministry of Finance, Prime Minister Office, Head of State, National Parliament, depending on country context

• Round tables, in the country, with Donor Agencies and International Organizations, incl. FAO

• Preparation of country Veterinary Services Budget; and of national or international investments
The OIE PVS Pathway is a continuous process aiming to sustainably improve the compliance of Veterinary Services with international standards.

IMPORTANT

- Keep track of the process
- Plan new steps on previous missions outputs
Thank you for your attention

Organisation Mondiale de la Santé Animale

World Organisation for Animal Health

Organización Mundial de Sanidad Animal

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