



**WORLD ORGANISATION FOR ANIMAL HEALTH**  
*Protecting animals, preserving our future*

# SEACFMD Bulletin

Foot and Mouth Disease Situation  
January to December 2019



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# Table of Contents

<b>Summary .....</b>	<b>2</b>
<b>Introduction .....</b>	<b>2</b>
1. Aims	
2. Reporting period	
3. Data source	
<b>Outbreaks of FMD in SEACFMD Countries in 2019 .....</b>	<b>3</b>
1. Overview of the regional situation in 2019	
2. FMD situation in SEACFMD countries	
<b>Characterisation of FMDVs in SEACFMD Countries in 2019 .....</b>	<b>11</b>
<b>Conclusions and discussions .....</b>	<b>13</b>
<b>References .....</b>	<b>Error! Bookmark not defined.</b>

# Summary

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The present issue summarises the Foot-and-mouth disease (FMD) outbreaks in the SEACFMD region in 2019 as well as the characterisation of detected FMD viruses (FMDVs). In total, 387 FMD outbreaks were reported in mainland South-East Asia countries and China. Amongst the reported outbreaks, 155 were due to serotype O, 32 were due to serotype A, and the remaining 200 were not typed. The prevalent lineages of FMDV include O/SEA/Mya-98, O/ME-SA/Ind-2001, O/ME-SA/PanAsia, O/Cathay, and A/Asia/Sea-97. Significant epidemiological events in 2019 include: 1) re-emergence of serotype A in southern Myanmar; and 2) no FMD field outbreaks reported in Mongolia.

## Introduction

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### 1. Aims

Following the previous issues of SEACFMD Bulletin presenting the regional FMD situation in the years from 2015 to 2018<sup>1</sup>, the current issue was developed to summarise the FMD situation in the entire year of 2019 in SEACFMD countries, including 10 ASEAN nations, China and Mongolia. The SEACFMD bulletins aim to update countries, partners and stakeholders of the regional FMD situation on a regular basis and to facilitate the formulation of risk-based strategies and more effective FMD control and prevention measures.

### 2. Reporting period

January 1<sup>st</sup> - December 31<sup>st</sup>, 2019

### 3. Data source

Sources of information in this report include data submitted by members to OIE through the World Animal Health Information Systems (WAHIS), the WAHIS Regional Core for South-East Asia/ASEAN Regional Animal Health Information System (ARAHIS), reports from OIE FMD Reference Laboratories in Pirbright (UK), Pakchong (Thailand) and Lanzhou (China), and country reports presented at the 22<sup>nd</sup> OIE SEACFMD National Coordinators Meeting held on 25-27 June 2019 in Ulaanbaatar, Mongolia, the SEACFMD LabNet Meeting held on 4-5 November 2019 in Pakchong, Thailand and the SEACFMD Virtual National Coordinators Meeting held in July 2020 <https://rr-asia.oie.int/en/events/23rd-seacfmd-national-coordinators-nc-virtual-meeting-1/>.

A FMD outbreak is defined as the occurrence of FMD in one or more animals in an epidemiological unit (*refer to a commune in Vietnam, a sub-district in Cambodia, or village/farm in the other SEACFMD countries*). All cases within 2 weeks from the previous case are considered as part of the same outbreak.

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<sup>1</sup> <https://rr-asia.oie.int/en/projects/fmd/seacfmd-bulletin/>

# Outbreaks of FMD in SEACFMD Countries in 2019

## 1. Overview of the regional situation in 2019

In 2019, FMD outbreaks have continued to affect traditionally endemic countries (China, Myanmar, Lao PDR, Vietnam, Thailand, Cambodia, and peninsular Malaysia), whereas Mongolia did not report any outbreaks (Figure 1). Of the total 387 outbreaks reported, 155 were due to serotype O, 32 were due to serotype A, and the remaining 200 were not typed due to absence of/insufficient samples collected or delayed laboratory testing. Cattle were reported affected from 341 outbreaks, buffaloes from 79, pigs from 30, and goat from 8 outbreaks. Infection involving more than one species was commonly noted in Lao PDR and Vietnam.

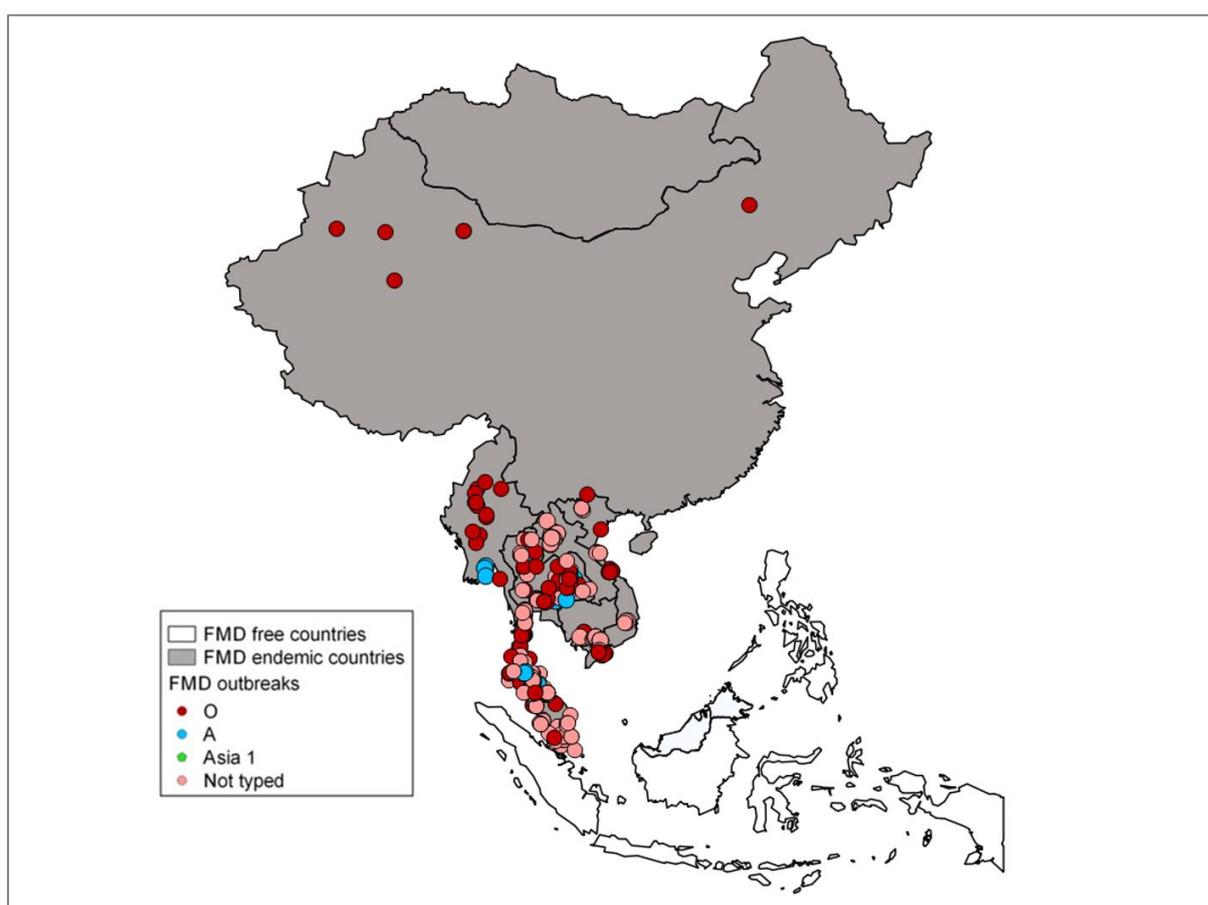


Figure 1. Distribution of FMD outbreaks in SEACFMD countries, 2019.

## 2. FMD situation in SEACFMD countries

**The Brunei, Indonesia, Philippines, and Singapore** did not report any FMD outbreaks in 2019 and maintained their official status of FMD free without vaccination.



## China

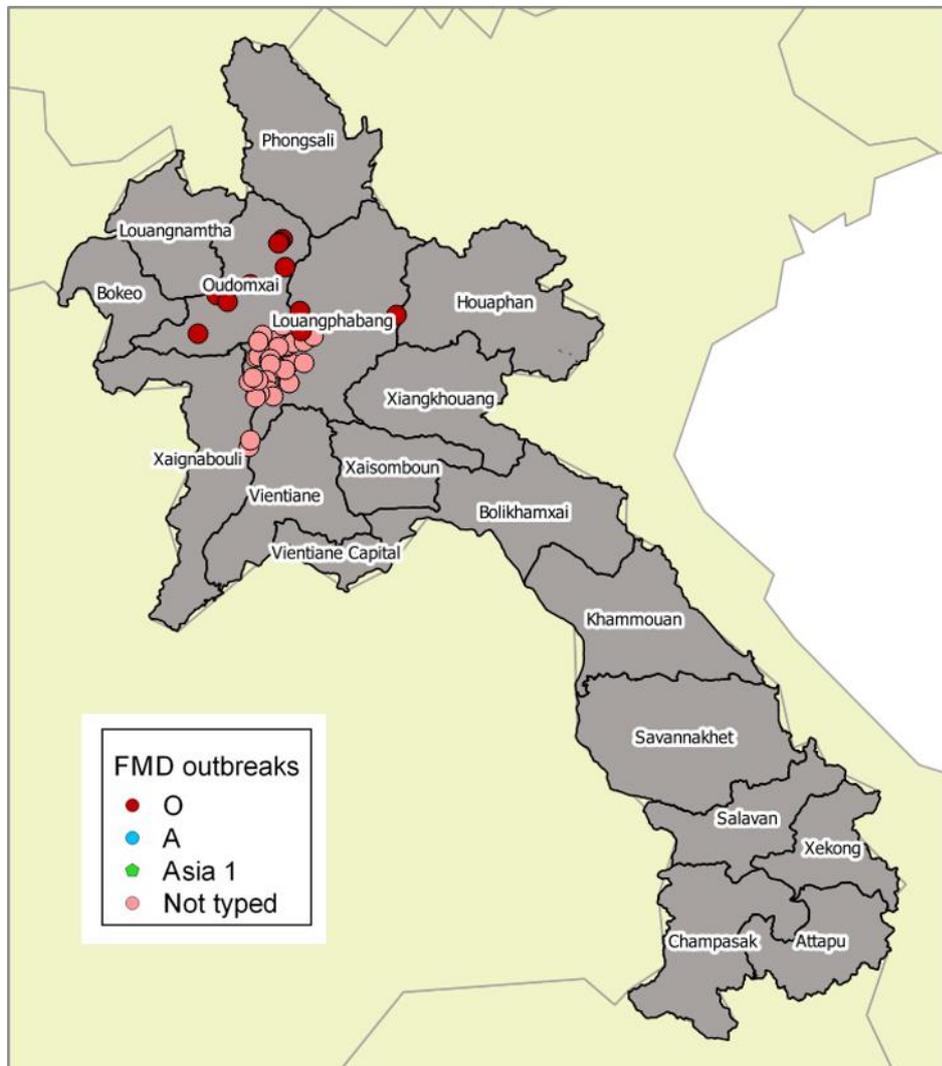
In 2019, China reported 6 FMD outbreaks in 2 Northern provinces<sup>3</sup>. All the outbreak viruses were due to serotype O viruses. Only cattle were affected.



<sup>3</sup> Data from WAHIS

### Lao PDR

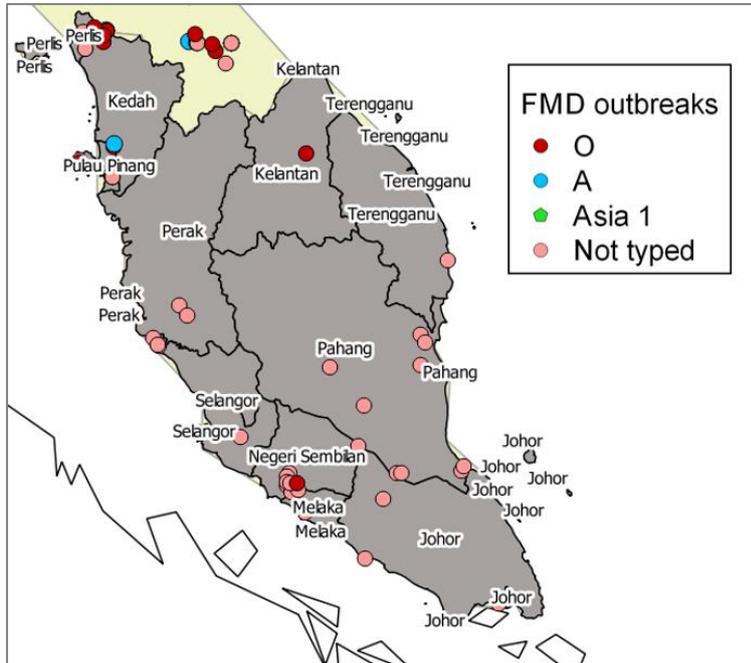
Lao PDR reported 63 FMD outbreaks in 3 Northern provinces in 2019<sup>4</sup>, affecting cattle, buffaloes, goats and pigs. This was the 3<sup>rd</sup> consecutive year that FMD outbreaks were reported in Northern Lao PDR after the cease of the mass vaccination by 2016. Serotype O viruses were detected in 11 outbreaks across all the 3 affected provinces, whereas the 52 outbreaks occurred in Luang Prabang in the 1<sup>st</sup> half 2019 were not typed.



<sup>4</sup> Data from ARAHIS

## Malaysia

Malaysia reported 39 FMD outbreaks in 10 provinces across the peninsular region<sup>5</sup>, affecting cattle, buffaloes and pigs. Four outbreaks were typed as due to serotype O viruses and 1 due to serotype A, while the remaining majority were not characterised.



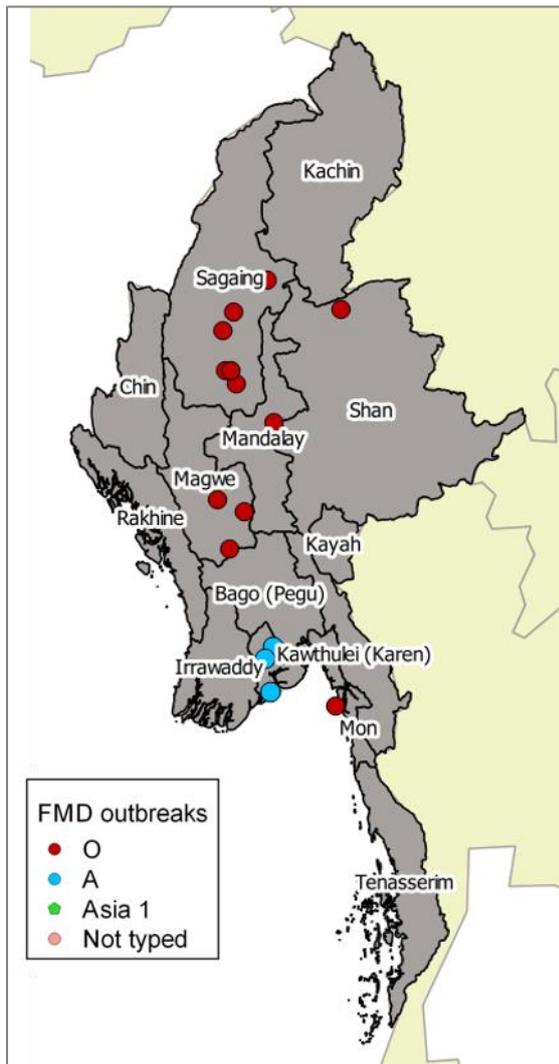
<sup>5</sup> Data from ARAHIS

## Mongolia

Mongolia did not report any FMD outbreaks in 2019.

## Myanmar

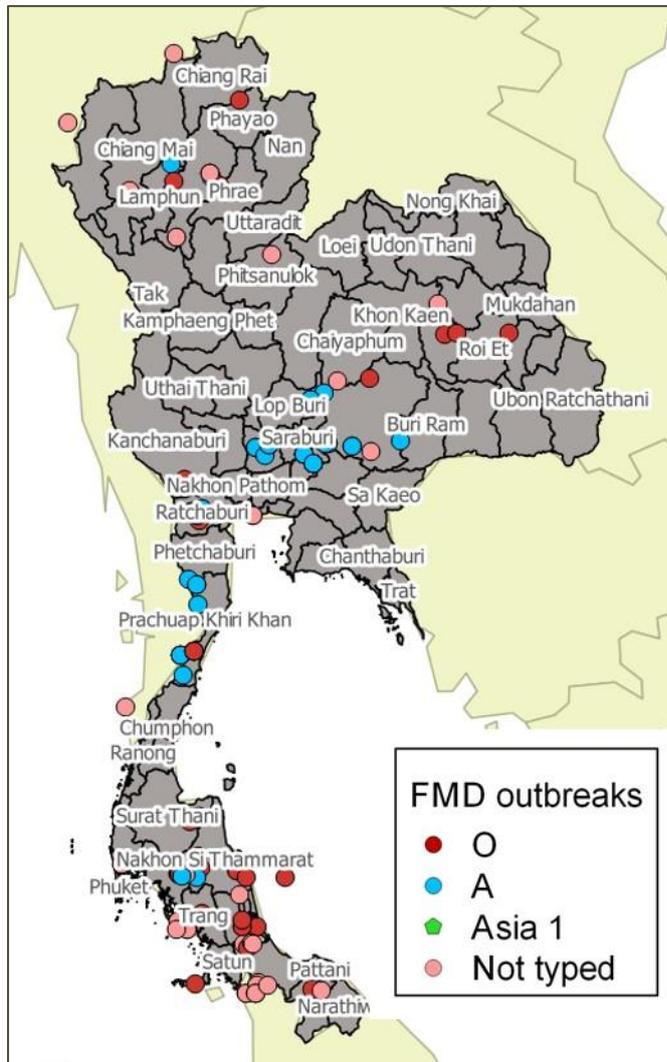
Myanmar reported 28 FMD outbreaks in 7 states <sup>6</sup>, and only cattle were affected. Serotype A was reported as the cause of 5 outbreaks, all in Yangon Region. This was the first detection of serotype A viruses in Southern Myanmar in the recent 10 years, apart from the detection of serotype A in the Central Mandalay Region in 2015. In the remaining outbreaks, 20 were due to serotype O were due to serotype O viruses, and 3 untyped. Serotype Asia-1 was no longer detected in any clinical outbreaks following its single detection in Rakhine State in 2017.



<sup>6</sup> Data from the 2020 SEACFMD Virtual National Coordinators Meeting

## Thailand

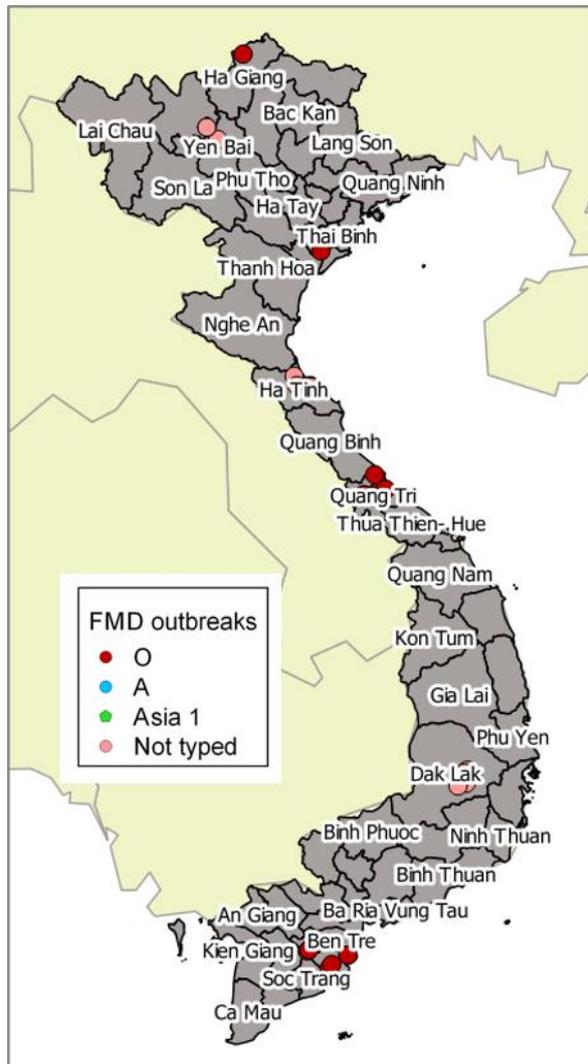
In 2019, Thailand reported 194 FMD outbreaks distributed throughout the country except for Region 2 (Eastern Thailand)<sup>7</sup>. Affected animals included cattle, buffaloes and pigs. Of these outbreaks, 99 were caused by serotype O and 23 were caused by serotype A viruses.



<sup>7</sup> Data from ARAHIS

## Viet Nam

Viet Nam reported 25 FMD outbreaks in 9 provinces in 2019<sup>8</sup>. Cattle, buffaloes, and pigs were reported affected and multi-species infections were common. Causative viruses were characterised in 12 outbreaks, all due to serotype O viruses.



<sup>8</sup> Data from ARAHIS

## Characterisation of FMDVs in SEACFMD Countries in 2019

In 2019, some FMDVs were sequenced for the VP1 coding region for strain identification, by which the following strains were detected:

- Serotype O: O/SEA/Mya-98, O/ME-SA/PanAsia, O/ME-SA/Ind-2001 and O/Cathay
- Serotype A: A/ASIA/Sea-97

Table 1. FMDV strains detected in SEACFMD Member Countries in 2019, as characterised by the World and/or Regional Laboratory for FMD.

Country	Serotype O	Topotype...				Serotype A	Serotype Asia-1
		SEA/Mya-98	ME-SA/PanAsia	ME-SA/Ind-2001	Cathay		
Cambodia	+		+			+	
China	+		+	+			
Lao PDR	+						
Myanmar	+	+		+		+	
Malaysia	+					+	
Mongolia							
Thailand	+		+	+		+	
Viet Nam	+	+	+	+			

+: the FMDV lineage present in the country.

Note: data were based on the genotyping reports of the World Reference Laboratory for FMD (WRL)

<http://www.wrlfmd.org/country-reports> and RRL-Pakchong, and country reports presented at the 22<sup>nd</sup> OIE SEACFMD National Coordinators Meeting held on 25-27 June 2019, in Ulaanbaatar, Mongolia and the SEACFMD LabNet Meeting held on 4-5 November 2019 in Pakchong, Thailand.

Serotype O continued to be the most prevailing serotype in 2019, with several lineages co-circulating. The Ind-2001 strain (e sublineage) has been reported in all infected Member Countries except for Cambodia, and it accounted for the majority of 2019 FMD outbreaks in China and Thailand.

Serotype A was reported at low frequencies in 2019. In all infected countries, the prevailing strain was the indigenous A/ASIA/SEA-97 strain.

Following the single detection of serotype Asia-1 FMDV in Rakhine State of Myanmar in early 2017, this serotype was no longer detected in any clinical outbreaks in the SEACFMD region. The Asia-1/Shamir strain has been included in the OIE-New Zealand project funded vaccination campaign in Central Myanmar since 2017. In the rest of the region, China has ceased to include serotype Asia-1 in the national FMD vaccination programme since 2018,

while Thailand and Malaysia continues to apply trivalent FMD vaccines including serotype Asia-1 for their vaccination programmes in large ruminants.

## Conclusions and discussions

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In 2019, a total of 387 FMD outbreaks were reported in the SEACFMD countries, which was a decline when compared to the 458 outbreaks reported in 2018. Serotype O remained to be the predominant serotype among all the characterised outbreaks, with multiple strains co-circulating. Similar to previous years, approximately half of the reported outbreaks were not typed, due to delayed/absence of outbreak investigation, insufficient quality/quantity of clinical samples collected, or delay in laboratory testing. These have limited our understanding of the regional FMD molecular epidemiology, and challenge the monitoring and adaption of control measures in a timely fashion especially under the risk of new virus incursion. To strengthen molecular epidemiological surveillance and improve FMD outbreak virus diagnosis, the OIE and FAO jointly organised the FMD Regional Expert Group (REG) Meeting on 14-16 May 2019 in Bangkok, Thailand<sup>9</sup>. The meeting identified leading institutes and experts to develop protocols on FMD molecular diagnostic algorithm and field sampling procedures tailored for different outbreak stages. The recommendations and protocols have been shared with Member Countries at the SEACFMD LabNet Meeting held on 4-5 November 2019 in Pakchong, Thailand. Regular follow-ups are needed to assess if Member Countries are able to adapt them in the national context to improve FMDV diagnosis.

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<sup>9</sup><https://rr-asia.oie.int/en/events/regional-expert-group-meeting-on-foot-and-mouth-disease/>



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