

# SEACFMD Roadmap 2021–2025

South-East Asia and China Foot and Mouth Disease Campaign

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# Acknowledgements

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## Executive Summary

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The SEACFMD Roadmap 2021–2025 is a guidance document that provides a strategic framework and direction to control and prevent FMD in South-East Asia and China. It is consistent with the Global Foot and Mouth Disease (FMD) Control Strategy developed by the World Organisation for Animal Health (OIE) and the Food and Agriculture Organization of the United Nations (FAO).

The SEACFMD Roadmap 2021–2025 will inform project planning for the next phase of the Campaign and will be used as the basis for the development of annual work plans by governments in accordance with their respective national contexts. Drawing on the successes and lessons learnt from previous phases of the Campaign, the objectives of this 6<sup>th</sup> phase are to improve FMD control in SEACFMD member countries, evaluate the outcomes achieved to date, and develop a formal process for monitoring the SEACFMD Campaign as it moves forward.

### Background and evolution of the Campaign

Following the recognition by the OIE and its Members of FMD as a regional animal health and development issue, the South-East Asia Foot and Mouth Disease (SEAFMD) Campaign was formally established in 1997 to control and, eventually, eradicate FMD in the sub-region. Its founding members were Cambodia, Lao PDR, Malaysia, Myanmar, the Philippines, Thailand, and Vietnam. Indonesia became a member in 1999, recognising the importance of regional coordination in order to maintain its FMD-free status. In 2010, Brunei, the People's Republic of China and Singapore also joined the Campaign, thereby vastly expanding its geographic coverage. Consequently, SEAFMD was renamed the South-East Asia and China Foot and Mouth Disease (SEACFMD) Campaign. Mongolia was accepted as its 12th member in 2016.

The key driver for countries to launch the SEACFMD Campaign was the understanding that FMD, as with any other transboundary animal disease (TAD), can only be controlled when countries work together in a coordinated manner to control the disease. While recognising that individual countries have the responsibility and accountability for managing their own disease control programmes, it was acknowledged that FMD control and eradication planning require a coordinated approach at sub-regional level.

The OIE SEACFMD Campaign has successfully implemented five phases from 1997 to 2020. While each of the following phases has had a specific emphasis, and they have all shared similar overall objectives:

- Phase 1 (1997–2001): 'set-up' phase establishing the basic groundwork of the Campaign
- Phase 2 (2001–2005): refinement of the strategic direction and components of the Campaign
- Phase 3 (2006–2010): development phase to improve coordination and partnership efforts
- Phase 4 (2011–2015): implementation phase to refine FMD control strategies, implement targeted vaccination, and enhance technical coordination
- Phase 5 (2016–2020): implementation phase to continue a sustainable approach to FMD control and expand the application of tools of the Progressive Control Pathway for FMD (PCP-FMD).

Phase 6 of the Campaign from 2021 to 2025 will propose a pragmatic and sustainable approach for FMD control and prevention. This Roadmap will guide countries to base the implementation of their national FMD plan on science, while taking account of achievements and lessons learnt from previous phases. The 6<sup>th</sup> phase will also evaluate the progress, impact, strengths and weaknesses of the SEACFMD Campaign since its inception and provide guidance for its way forward.

### Key achievements and lessons learnt

SEACFMD has made notable achievements with governments and other partners over the past 20 years. Significant improvements have been made in areas of risk analysis, outbreak investigation, laboratory and epidemiological networks, communication, and strengthening the capacities of Veterinary Services. Of

particular note is the improved understanding of livestock movements, 'hotspots' and disease patterns in South-East Asia, People's Republic of China and Mongolia.

Under Phase 5, OIE Members successfully carried out a range of activities in FMD prevention and control in three broad categories: technical measures, coordination and advocacy, and governance and policy. Key achievements in the past five years include: (a) capacity building of national Veterinary Services through physical and online training; (b) conducting risk assessment studies with international partners, as well as research on FMD epidemiology and risks, socio-economic studies on the impact of FMD, and post-vaccination monitoring (PVM) studies; (c) participating actively in multinational collaborations for TAD control and prevention, including FMD; (d) improving communications and public awareness of FMD; (e) establishing national committees to coordinate and supervise FMD activities; and (f) developing or updating national FMD control plans or contingency plans based on previous achievements and lessons learnt.

Key among the lessons learnt to date are the importance of ownership by and commitment from Members. While legislative and financial support for FMD control varies widely among SEACFMD member countries, political commitment is critical to achieve the objectives of the Campaign and to concretely and sustainably support the programme. The capacities of Veterinary Services are another key factor in successful FMD control. Members with weak Veterinary Services cannot adequately implement early detection and response to FMD outbreaks, or routine control activities such as vaccination and movement control.

## Regional context

When developing the foreseen objectives and associated activities under the SEACFMD Roadmap 2021–2025, it is vital to consider the current regional context, status of FMD in the region, and recent significant changes that have had direct or indirect impacts on FMD-related activities.

With reference to the epidemiological context, FMD viruses present in the region include serotypes O, A, and Asia 1. Significant recent epidemiological changes include the incursion of the O/ME-SA/Ind-2001 strain from South Asia into South-East Asia in 2015 that continues to spread; the isolated incursion in 2017 of Asia 1/Asia/G-VIII strain in Rakhine state, Myanmar, which was not reported in other parts the country; and in 2019, the first detection of serotype A in southern Myanmar since 2010.

In association with other control measures, FMD vaccination is considered as one of the most effective approaches to combat FMD; however, its application varies in countries across the region. While some countries have sufficient resources to conduct preventive and emergency vaccination, resource-deficient countries have limited access to high-quality vaccines and mainly rely on vaccines supplied by international donors on a project basis. The OIE and FAO have developed FMD vaccination and PVM guidelines and encourage countries to use PVM findings to further improve vaccination strategies.

In recent years, the SEACFMD sub-region has experienced significant changes that have direct or indirect impacts on FMD-related activities. Some of the most important implications include meat consumption patterns, livestock movements, and the introduction and spread of African swine fever in the region.

While technological and infrastructure developments in the livestock sector, driven by a growing demand for meat in the SEACFMD sub-region, have greatly increased meat availability in areas with high population density, they have also raised the risk of rapid, far-reaching transmission of animal diseases such as FMD.

Another important change affecting FMD control is the shift in the movement pathways of large ruminants in the region. These are characterised by extensive movements throughout the Greater Mekong Subregion, with large numbers of animals being transported immense distances and crossing national borders, and a notable shift towards strong markets in the People's Republic of China.

Additional risks posed to the region include the recent introduction and spread of African swine fever (ASF). Since the first outbreak was reported in the People's Republic of China in August 2018, the virus has continued to circulate across the country, as well as East Asia, South-East Asia and South Asia at a worrying rate. In addition to its devastating impacts on pork production and consumption in the region, ASF also has significant implications for FMD control.

## SEACFMD strategy for 2021–2025

Phase 6 of the SEACFMD Campaign is guided by the following goal:

**Goal:** Strengthen Veterinary Services to effectively prevent, control and eradicate FMD and other transboundary animal diseases (TADs), which will be determined based on the following:

- FMD-free countries and zones maintain their FMD-free status;
- Infected countries maintain their respective FMD PCP Stage or progress to the next PCP stage during the 6th phase of the SEACFMD Campaign;
- Veterinary Services of SEACFMD member countries are better prepared to the introduction of new strains and emerging diseases through awareness, continuous risk assessment, risk mitigation measures, contingency planning and simulation exercises.

The two objectives outlined below will help to achieve the goal and will provide strategic direction for Phase 6 of the Campaign:

- **Strategic Objective 1:** Reinvigorated FMD prevention and control in SEACFMD member countries
- **Strategic Objective 2:** Comprehensive evaluation of the SEACFMD Campaign (1997–2020) to address critical gaps

A series of outcomes has been identified under these objectives as the steps needed to achieve the goal of the 2021–2025 SEACFMD Roadmap. These outcomes will be the basis for the logical framework under which the Phase 6 work plan will be defined.

### **Strategic Objective 1: Reinvigorated FMD prevention and control in SEACFMD Member Countries**

#### **Outcome 1: Improved surveillance, movement control, vaccination, and preparedness/response to FMD**

Emphasis will also be placed on the following: (a) addressing gaps in reporting, improving technical detection of outbreaks, strengthening laboratory capacity and strengthening the regional network's and countries' capacities in FMD surveillance and reporting; (b) promoting the pragmatic implementation of OIE standards for the safe trade of animals and animal products; (c) conducting studies on the movement of animals and animal products to track FMD risk pathways and adjust control measures; (d) improving vaccination programmes, including facilitating access to high-quality vaccines and vaccine quality control and ensuring that livestock for export are vaccinated with high-quality vaccine; and (e) enhancing preparedness at country-level to immediately report and better respond to the introduction of exotic strains.

#### **Outcome 2: Improved ownership and enabling environment at the national level**

An important focus of this Roadmap will be to increase ownership of the Campaign at national and regional levels in order to help the Campaign to achieve its desired impact. Ownership of the Campaign by SEACFMD member countries is essential to ensure their full engagement and the effective implementation of activities at both national and regional levels. Equally important is the continuation of FMD prevention and control activities in both endemic and free countries.

Many countries in South-East Asia have received PVS Pathway missions and several gaps of critical importance for FMD control and prevention have been identified. SEACFMD member countries should continue to request OIE PVS Pathway missions to assess and improve national Veterinary Services' capacity to implement national plans for the control of FMD and other TADs. The OIE will also support countries wishing to conduct a PVS self-evaluation to identify gaps in implementing FMD-related activities. Countries will be encouraged to strengthen the Critical Competencies that do not reach the expected level for their respective PCP-FMD stages.

Additional areas of work under this outcome will include the following: (a) benchmarking existing national legislation related to FMD, as well as the current gaps; (b) continuing socio-economic activities to better

understand and address farmers' and traders' reluctance and incentives in FMD control activities; (c) pursuing public-private partnerships (PPP) where relevant; (d) improving cost-efficient synergies with other priority livestock activities; and (e) exploring ways to improve FMD-related expertise among technical experts and national laboratories, and establishing an 'expert pool' to share knowledge on FMD-related topics and address regional needs.

### **Outcome 3: Improved regional coordination**

Political commitment is critical to the success of the SEACFMD Campaign. The engagement of regional political organisations, such as the Association of Southeast Asian Nations (ASEAN), has been identified since the start of this Campaign as an essential element for its success. It will be critical to obtain from ASEAN a reaffirmation of its support to control and eradicate FMD in the region. Moreover, Members will be encouraged to demonstrate their continued commitment by allocating human and financial resources to the implementation of their respective national FMD plans.

In addition, regional coordination will be further strengthened with firmer commitments from Members. The regional coordination function will be shared between the SRR SEA and the SEACFMD Sub-Commission through its Steering Committee and its networks (National Coordinators, laboratory, epidemiology). The Steering Committee members will be expected to play a more active role to steer and coordinate the SEACFMD Campaign, with secretariat support from the SRR SEA, while the networks will be further strengthened to better coordinate activities, transfer ownership to countries, harmonise approaches, and enhance the quality of FMD information.

Additional areas of focus under this outcome will include: (a) ensuring active collaboration with key partners in the prevention and control of FMD and other related TADs; and (b) establishing cooperation with non-SEACFMD member countries. Collaboration with key partners such as FAO, research institutions and donors is critical for the success of the SEACFMD Campaign. Furthermore, the SEACFMD Campaign will benefit from cooperation with non-member countries and other OIE regions through the sharing of experiences and information on their respective FMD situations, as well as activities related to FMD control.

### **Strategic Objective 2: Comprehensive evaluation of the SEACFMD Campaign (1997–2020) to address critical gaps**

This objective will constitute the 'assessment' component of Phase 6. With inputs from SEACFMD member countries, the OIE will develop and implement a methodology to evaluate the outcome and impact of the SEACFMD Campaign since its inception and to assess its current strengths and weaknesses. Based on this assessment and the current regional strategy, specific progress indicators will be developed.

### **Implementation mechanisms and monitoring and evaluation**

An implementation plan and monitoring and evaluation framework for the Roadmap 2021–2025 have been developed, drawing on feedback from SEACFMD member countries. These will be reviewed on a regular basis to monitor progress at national and regional levels against established performance indicators and objectives, identify areas where additional support may be required, or shift the focus of activities based on results.



# 1. Introduction

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## 1.1 Historical perspective

Efforts to coordinate the control of foot and mouth disease (FMD) in South-East Asia began as early as 1991, with the formation of a Coordinating Group for the Control of Foot and Mouth Disease in South-East Asia following the approval in May 1991 of the World Organisation for Animal Health (OIE) International Committee (now called the World Assembly of OIE Delegates). Two international meetings of the Coordinating Group were held in 1992 and 1993, with the technical support of the OIE Foot and Mouth Disease and Other Epizootics Commission (now called the OIE Scientific Commission for Animal Diseases). In 1993, the OIE Regional Commission for Asia, the Far East and Oceania recommended transforming the Coordination Group into an OIE Sub-Commission for Foot and Mouth Disease in South-East Asia (Sub-Commission), which was approved by the OIE International Committee in May 1994.

In 1997, the Sub-Commission set up a Regional Coordination Unit (RCU) in Bangkok to coordinate FMD control activities in South-East Asia, thus establishing the South-East Asia Foot and Mouth Disease (SEAFMD) Campaign. The founding members were Cambodia, Lao PDR, Malaysia, Myanmar, the Philippines, Thailand and Vietnam. In 1999, Indonesia joined the Campaign in order to receive regular updates on the FMD control situation in other parts of South-East Asia. In 2010, Brunei, the People's Republic of China and Singapore also joined the Sub-Commission, thereby expanding its geographic coverage. Consequently, SEAFMD was renamed the South-East Asia and China Foot and Mouth Disease (SEACFMD) Campaign. In 2016, Mongolia was accepted as the 12th member of the Sub-Commission.

With the establishment of the OIE Sub-Regional Representation for South-East Asia (OIE SRR SEA) in 2010, the functions of the RCU in coordinating the SEACFMD Campaign were absorbed into the new office.

The key driver for countries to launch the SEACFMD Campaign was the recognition that FMD, as with any other transboundary animal disease (TAD), can only be controlled when countries with a similar epidemiological situation work together in a coordinated manner to control the disease. In Asia, where most countries have contiguous borders and regular cross-border movements of people and goods, it is very difficult for a single country to prevent the transboundary spread of FMD to other countries. While recognising that individual countries have the responsibility and accountability for managing their own disease control programmes, it was acknowledged that FMD control and eradication planning require a coordinated approach at sub-regional level.

Coordination facilitates the development of coherent strategies, standards, disease control approaches, training, and improved communications; the sharing of information and of experience; the provision of advice; and the establishment of laboratory and epidemiological networks. More efficient linkages and working arrangements with specific projects can be pursued to increase the prospects of achieving objectives. Coordination approaches are defined and monitored for effectiveness by the OIE SRR SEA in collaboration with OIE Members.

Both SEAFMD and now SEACFMD have made notable achievements with governments and other partners. Significant improvements have been made in areas of risk analysis, outbreak investigation, laboratory and epidemiological networks, and communication. Of particular note is the improved understanding of livestock movements, 'hotspots' and disease patterns in South-East Asia, People's Republic of China and Mongolia. This knowledge has informed disease management options, as well as the development of a regional FMD molecular diagnostic algorithm by the FMD Regional Expert Group, endorsed by the SEACFMD Laboratory Network (LabNet).

The SEACFMD Campaign is a highly ambitious programme and, given its complexities, should be viewed as a long-term activity that requires ongoing political commitment and financial resources to achieve success. While the ambitious target of eradicating FMD in the sub-region by 2020 – which was set in the early days of the Campaign – could not be attained, many lessons have been learnt during its

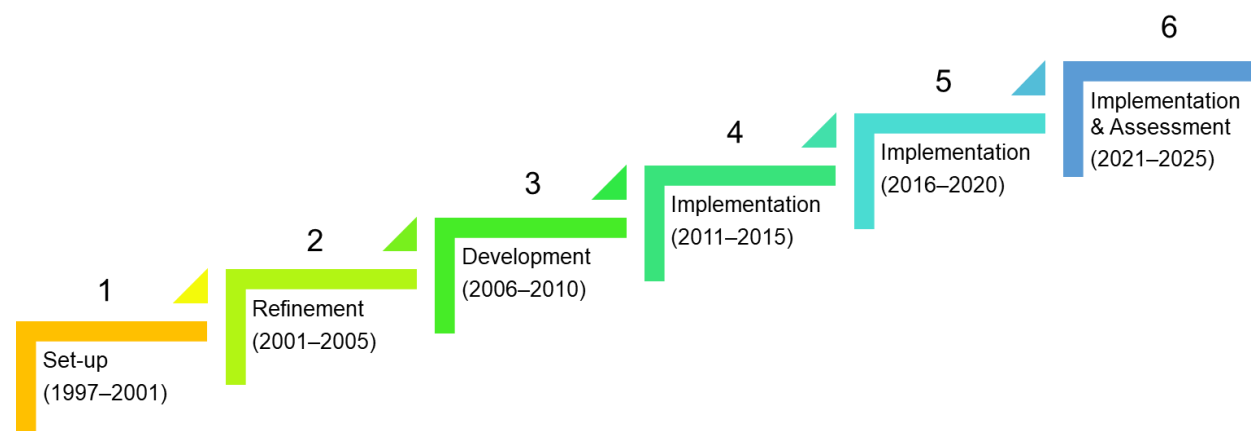
implementation and, as a result, more realistic objectives and pragmatic approaches have been developed and achieved.

Key among these lessons learnt are the importance of ownership by and commitment from Members. Legislative and financial support for FMD control varies widely among SEACFMD member countries. However, political commitment is critical to achieve the objectives of the SEACFMD Campaign and to concretely and sustainably support the programme. In 2004, the Association of Southeast Asian Nations (ASEAN) endorsed the SEACFMD Campaign, which marked a significant political achievement for the Campaign.

The capacities of Veterinary Services are another key factor in successful FMD control. Members with weak Veterinary Services cannot adequately implement early detection and response to FMD outbreaks, or routine control activities such as vaccination and movement control. Efforts have been and are still being made to strengthen Veterinary Services' capacities in South-East Asia.

### Evolution of SEACFMD

Since 1997, different phases of the Campaign have succeeded each other in order to respond to Members' needs and their progress in controlling FMD, as shown in Figure 1.



**Figure 1.** Evolution of the six phases of the OIE SEACFMD Campaign from 1997 to 2025

The OIE SEACFMD Campaign has successfully implemented the following five phases from 1997 to 2020:

- **Phase 1 (1997–2001)** was the ‘set-up’ phase and established the basic groundwork for the future of the Campaign. During these initial years, country enthusiasm was very strong.
- **Phase 2 (2001–2005)** refined the strategic direction and components of the Campaign, based on improved knowledge of FMD and animal health management in the region. Harmonisation of approaches across Members, based on enhanced technical, surveillance and diagnostic capacity, was coordinated by the RCU.
- **Phase 3 (2006–2010)** was designed as a ‘development’ phase to improve coordination and partnership efforts, engage in high-level consultations with government and industries, and consolidate national control and eradication programmes and strategic direction. The SEACFMD Campaign approach was used as a model for the coordination of other TADs in the region.
- **Phase 4 (2011–2015)** built on the achievements and experience of the previous phases, but sharpened the focus of control strategies based on risk analysis and enhanced knowledge of regional epidemiology, animal movement and animal production systems. Targeted vaccination programmes were completed in hot spots and high-risk areas. Technical coordination was also enhanced.

- **Phase 5 (2016–2020)** continued the sustainable approach to FMD control, and further expanded the application of tools of the Progressive Control Pathway for Foot and Mouth Disease (PCP-FMD).

**Phase 6** of the Campaign, to be implemented from 2021 to 2025, will propose a pragmatic and sustainable approach for FMD control and prevention, seeking to move member countries closer to the ambitious goal of controlling FMD in the region. During this phase, the new Roadmap 2021–2025 will guide countries to base the implementation of their national FMD plan on science, while taking account of achievements and lessons learnt from previous phases. The 6<sup>th</sup> phase will also be an ‘assessment’ phase aiming to evaluate the progress, impact, strengths and weaknesses of the SEACFMD Campaign since its establishment and to provide guidance for its way forward. It is believed that political, socio-economic and technical factors may still hinder countries’ progress in controlling FMD. This 6<sup>th</sup> phase will re-evaluate the situation and propose approaches to address these constraints.

This Roadmap begins by presenting a review of previous phases of the Campaign, including key achievements, lessons learnt, and country progress during Phase 5 of the Campaign (2016–2020). A summary of the current regional context is then provided, including the status of FMD in the region, recent changes that affect FMD control, and gaps in the performance of national Veterinary Services. This is followed by a detailed overview of the SEACFMD strategy for the period 2021 to 2025, including the goals and strategic components – outcomes and outputs – of Phase 6 of the Campaign. The respective roles of the OIE SRR SEA and SEACFMD member countries are also defined. The Roadmap 2021–2025 closes with a description of the implementation mechanisms and monitoring and evaluation framework that will track progress against stated objectives and indicators and identify areas for additional support.

## 1.2 Principles and methodology for the development of the Roadmap 2021–2025

The Roadmap 2021–2025 was developed based on the following inputs:

- Literature review, including amongst others:
  - Countries' PVS Pathway reports and the identified strengths, gaps and needs
  - Feedback received from SEACFMD member countries on the progress they had made against their workplan for the Roadmap 2016–2020
  - Recommendations from different SEACFMD meetings (Sub-Commission, National Coordinators, EpiNet, LabNet) and other regional meetings or reports
- Information from SEACFMD Campaign networks' activities, reports, study reports, and bulletins
- Assessments of progress made during the previous Roadmap (2016–2020)
- Regular consultation with SEACFMD member countries.

SEACFMD member countries were involved in and actively contributed to each phase of the development of this document. All SEACFMD bodies (primarily, the Sub-Commission, the Steering Committee and the National Coordinators) contributed as specified below and in Figure 2.

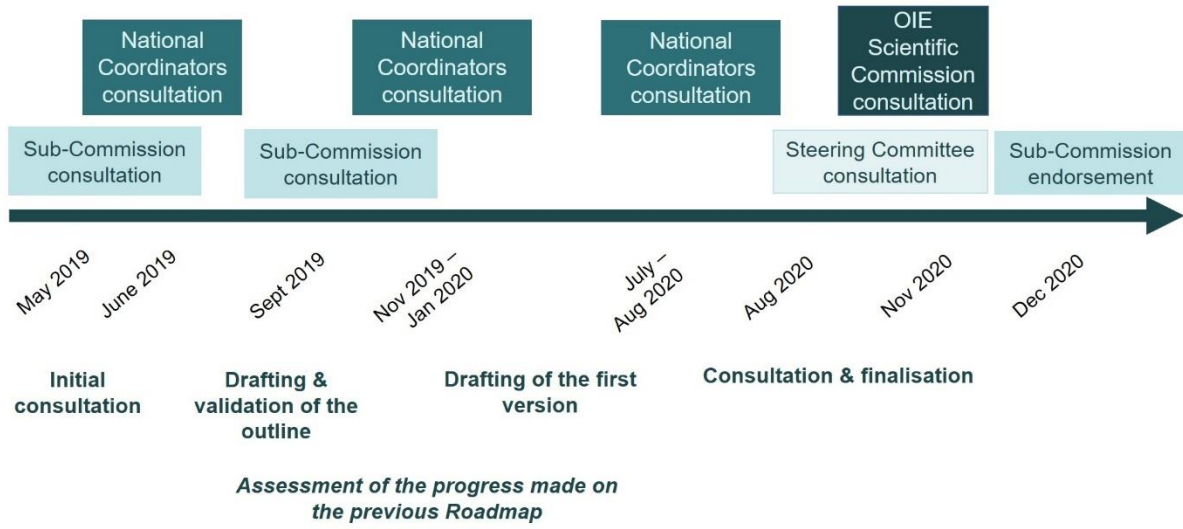
The SEACFMD Sub-Commission provided strategic guidance for the 2021–2025 Roadmap and was regularly consulted before the endorsement of the Roadmap, including via the SEACFMD Steering Committee.

Similarly, the SEACFMD National Coordinators contributed to all phases of the Roadmap's development. More specifically, they were consulted to:

- Collect their inputs on the SEACFMD Campaign (see section 2.1 of this document)
- Evaluate the progress made against the SEACFMD Roadmap 2016–2020 (see section 2.2 of this document)
- Develop the outline of the SEACFMD Roadmap
- Comment on the first draft of the SEACFMD Roadmap (present document)
- Discuss the different steps of the development and validation process.

In addition to email exchanges, this participatory approach was facilitated through the use of new technologies such as Zoom, Mentimeter and related polls, which enabled the gathering of information and feedback in spite of the restrictions caused by the COVID-19 pandemic.

Figure 2 below summarises the timeline and various inputs that contributed to the development of the SEACFMD Roadmap 2021–2025.



**Figure 2.** Timeline for the development of the SEACFMD Roadmap 2021–2025

## 2. Progress of the SEACFMD Campaign

SEACFMD campaign has made notable achievements with governments and other partners since its inception in 1997. The SEACFMD Campaign has expanded its coverage, progressively reduced FMD infected areas and recognized and maintained FMD free countries and zones. SEACFMD Campaign leads to successful maintenance of regional coordination and cooperation, and provides an effective model on the control of other TADs at a regional level.

Under the SEACFMD Roadmap 2016–2020 (Phase 5), SEACFMD Member Countries successfully carried out a range of key activities in FMD prevention and control. The progress reports provided by the SEACFMD Member Countries (Brunei, Indonesia, Lao PDR, Mongolia, Myanmar, People’s Republic of China, Philippines, Singapore and Thailand) are annexed to the Roadmap (Appendix A).

**Key achievements and lessons learnt** under each of the three Strategy Components of the SEACFMD Roadmap 2016–2020 are listed in Table I below.

**Table I.** Key achievements and lessons learnt of the SEACFMD Roadmap 2016–2020

Strategy Component	Key Achievements	Lessons learnt
Strategy Component 1: Technical measures	<ul style="list-style-type: none"> <li>- Capacity building in the Veterinary Service system through physical and online training in various areas, such as field and laboratory FMD surveillance and detection; field veterinary epidemiology education; specific curriculum developed for community animal health workers to provide basic health services to rural animal populations; and using geographic information systems to report and analyse outbreak data</li> <li>- Conducting risk assessment studies in collaboration with international partners to guide FMD control or preventive measures</li> <li>- Conducting research to have a better understanding of FMD epidemiology and risks</li> <li>- Conducting post-vaccination monitoring (PVM) studies to assess the impact of vaccination campaigns</li> <li>- Improving the knowledge on the regional livestock movement pattern;</li> </ul>	<ul style="list-style-type: none"> <li>- There are significant variation in Member Countries’ capacities to implement SEACFMD Campaign activities.</li> <li>- There has been a lack of capacity to carry out robust risk assessment studies independently</li> <li>- Passive outbreak data cannot provide a complete picture of the FMD situation, and can mislead risk assessment and risk mitigation measures</li> <li>- There has been a lack of capabilities to carry out rapid FMD diagnosis and virus characterisation at the national level</li> <li>- Countries lack technical expertise to apply the zoning approach in FMD control and eradication</li> <li>- There is limited understanding on how to apply biosecurity measures adaptable to the local context</li> <li>- Attempts to strengthen border control and promote safe cross-border trade have been challenged by many socio-economic constraints</li> </ul>
Strategy Component 2: Coordination and advocacy	<ul style="list-style-type: none"> <li>- Participating actively in regional activities and bilateral/ multinational collaborations</li> </ul>	<ul style="list-style-type: none"> <li>- It has been difficult to implement cross-sectoral or multinational collaboration on disease</li> </ul>

Strategy Component 3: Governance and policy	related to the control and prevention of TADs, including FMD	emergency preparedness and response
	<ul style="list-style-type: none"> <li>- Improving and maintaining public awareness of FMD</li> <li>- Conducting socio-economic studies to evaluate FMD impact, in order to support Veterinary Services to advocate with the government on the importance of FMD control and prevention, and on the selection of the most cost-effective risk mitigation measures.</li> <li>- Establishing national FMD committees to coordinate and supervise FMD activities</li> <li>- Developing, reviewing or updating national FMD control plans or contingency plans based on previous achievements and lessons learnt</li> <li>- Securing continued external funding to support campaign activities</li> </ul>	<ul style="list-style-type: none"> <li>- It can be difficult to achieve an effective coordination of national FMD activities due to an inactive national FMD committee</li> <li>- There is a need for stronger public-private partnerships (PPP) to effectively implement FMD activities</li> <li>- The targets of the SEACFMD campaign is set very high, ignoring the field implementation capacity.</li> <li>- Effective implementation of the national FMD control programme or contingency plan requires additional resources</li> <li>- There is a strong need to conduct self-assessments or OIE Performance of Veterinary Services (PVS) assessments on veterinary legislation in order to identify areas for improvement</li> <li>- Legislative and financial support for FMD control varies widely among SEACFMD member countries, and those SEACFMD member countries with either limited resources and poor ownership fails to implement the roadmap activities.</li> </ul>

In addition, the key achievements, strengths and weaknesses of the SEACFMD Campaign were assessed through a participatory approach by the SEACFMD National Coordinators and key stakeholders from research institutes, the private sector, and partner organisations at the 22<sup>nd</sup> SEACFMD National Coordinators meeting held in Ulaanbaatar, Mongolia on 22–25 June 2019. The main feedback received is affiliated in Appendix B.

The 4<sup>th</sup> SEACFMD Roadmap is built upon the successes of the previous phases of the SEACFMD Campaign. It aims to provide strategic direction to guide Members in addressing ongoing FMD challenges during the period 2021–2025, while drawing on the key lessons learnt and previous constraints encountered.

### 3. SEACFMD Regional Context

#### 3.1 Current status of foot and mouth disease in the region

##### FMD epidemiology

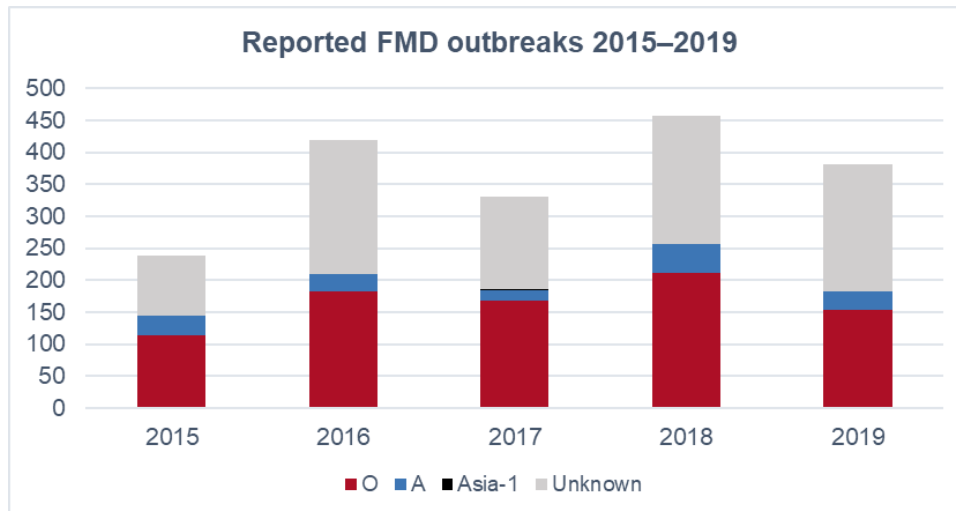
The SEACFMD Campaign brings together countries from FMD virus (FMDV) pool 1, which is one of seven distinct regional FMDV pools classified by the FMD reference laboratory network of the OIE and Food and Agriculture Organization of the United Nations (FAO) for a coordinated effort to combat FMD. Viruses present in this pool include serotypes O, A and Asia 1. Under serotype O, four genotypes have been identified in the region: O/SEA/Mya-98, O/ME-SA/PanAsia, O/ME-SA/Ind-2001, and O/Cathay. Only one genotype is present under serotype A (A/SEA-97) and two genotypes from serotype Asia 1 (Asia 1/Asia/G-VIII and Asia 1/Asia/G-V). The detailed distribution of each genotype of FMDV is summarised in Table I.

**Table I.** Foot and mouth disease virus distribution in SEACFMD member countries (the year refers to the last year the corresponding strain was reported; updated to December 2019).

Country	Serotype					
	O/ME-SA/ Ind-2001	O/SEA / Mya-98	O/Cathay	O/ME-SA/ PanAsia	A/ASIA/ Sea-97	Asia 1/G-VIII Asia 1/G-V
Cambodia		2016		2018	2016	
PR China	2019	2018	2018	2019	2018	2009 (G-V)
Laos	2015	2017		2018	2018	
Malaysia	2018	2016			2019	
Mongolia	2018	2018		2018	2016	2005 (G-V)
Myanmar	2019	2019			2019	2017 (G-VIII)
Thailand	2019	2018	2012	2019	2019	
Vietnam	2019	2019	2018	2018	2017	2006 (unnamed) 2007 (G-V)

Figure 3 shows the evolution of FMD outbreaks reported by endemic countries through passive surveillance from 2015 to 2019. During this time period, serotype O was the most dominant serotype, followed by serotype A. Serotype Asia 1 was only detected in isolated outbreaks in Rakhine state of Myanmar in 2017. It should be noted that viruses from approximately 50% of outbreaks in South-East Asia were not characterised each year; this represents a significant gap in the understanding of FMD molecular epidemiology in the sub-region.





**Figure 3.** Evolution of Foot and mouth disease (FMD) outbreaks reported by endemic countries through passive surveillance, 2015–2019

Significant epidemiological changes in the past five years include: (a) the incursion of the O/ME-SA/Ind-2001 strain from South Asia into South-East Asia, which caused field outbreaks in 2015, and its subsequent rapid geographic expansion [1]; (b) the isolated incursion in 2017 of Asia 1/Asia/G-VIII in field outbreaks in Rakhine state, Myanmar, which was not reported in other parts of the country, and is due to another viral incursion from South Asia as shown through viral genetic analysis [2]; (c) in 2017, the first FMD field outbreaks reported in northern Lao PDR since May 2013; and (d) in 2019, the first detection of serotype A in southern Myanmar since 2010.

Over the past five years, cattle have remained the most affected species, followed by buffaloes, pigs and small ruminants. Although some sporadic sero-surveillance studies have shown that small ruminants were also widely affected by FMD in endemic settings (e.g. an FMD sero-survey in early 2018 shows a non-structural protein antibody prevalence level of 27% to 53% in different regions of Myanmar), often FMDV infection does not cause obvious symptoms in these species, making it difficult to diagnose through the passive surveillance system. Detailed FMD epidemiological reports from 2015 to 2019 are summarised in the annual SEACFMD Bulletin [3].

### FMD vaccination

In association with other control measures, FMD vaccination is considered as one of the most effective approaches to combat FMD, while its application varies in countries across the region. Mass vaccination is implemented in Thailand and People’s Republic of China to increase herd immunity in target species, and is supported by national FMD vaccine production plants. In Vietnam, Malaysia and Mongolia, FMD vaccination is more risk-based, relying on vaccines supplied by overseas manufacturers. Since 2018, Vietnam has started to produce monovalent type O FMD vaccines using local strains to meet the increasing domestic market demand. In addition to preventive vaccination, emergency vaccination is common in the above-mentioned countries to prevent the spread of FMD during an outbreak. Resource-deficient countries, including Lao PDR, Cambodia and Myanmar, have limited access to high-quality vaccines and mainly rely on vaccines supplied by international donors on a project basis.

In general, access to good quality vaccines is unequal across the sub-region and FMD vaccine quality control has not progressed significantly due to technical and financial constraints.

The OIE and FAO have developed FMD vaccination and PVM guidelines [4] and encourage countries to use the PVM findings to further improve vaccination strategies. Given the high level of virus prevalence in

infected countries in the SEACFMD sub-region, PVM studies have mainly been limited to the assessment of magnitude and persistence of vaccine-induced immunity.

### FMD national control and prevention programmes

In the SEACFMD sub-region, all FMD-free countries/zones have developed FMD contingency plans and all endemic countries/zones have developed their own FMD control programmes. An FMD control programme consists of official guidelines, typically on a five-year basis, for a country to achieve its strategic objectives through various activities, such as active and passive surveillance, outbreak investigation, animal quarantine and movement restrictions, vaccination programmes, environmental sanitary management, and isolation or slaughtering of sick animals. Generally, the control programme includes a timeline and indicators for the monitoring and evaluation of its progress, and a budgetary plan detailing the necessary financial resources for the implementation of the designated activities. The SEACFMD Campaign supports Members to align their national programmes with the FAO/OIE Global FMD Control Strategy and the SEACFMD Roadmap, for a harmonised regional approach to FMD control.

Among the endemic countries in the SEACFMD sub-region, Thailand, People's Republic of China and Mongolia have official FMD control programmes endorsed by the OIE. Myanmar, Lao PDR and Cambodia have been developing risk-based strategic plans (RBSP) for FMD control that provide risk-based pragmatic guidelines for national FMD control activities.

## 3.2 Recent changes that have significant impacts on FMD control

In recent years, the SEACFMD sub-region has experienced significant changes that have direct or indirect impacts on FMD-related activities. Some of the most important implications are discussed in this section.

### Socio-economic development and meat consumption patterns

The SEACFMD sub-region represents one of the strongest emerging markets in the world, with its population, urbanisation and Gross Domestic Product per capita continuing to expand. These developments have contributed to rapid growth in livestock production and meat consumption. While poultry and pork remain the most consumed types of meat in the region (Figure 4), a rapid rise in red meat consumption has also been observed, especially in the fastest-growing economies such as Vietnam and the People's Republic of China (Figure 5).

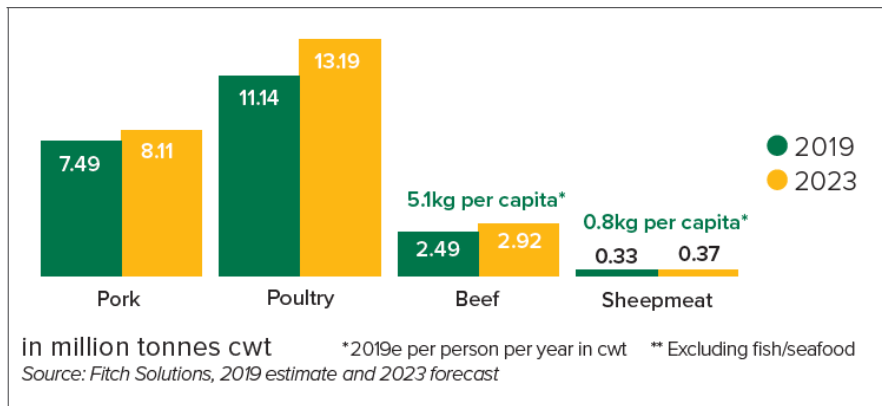
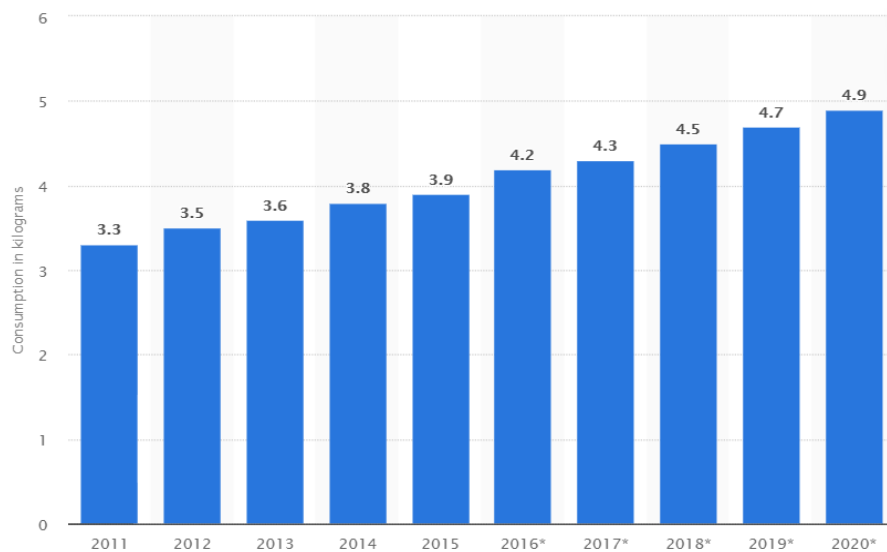


Figure 4. Meat consumption in South-East Asia [5]



**Figure 5.** Annual per capita consumption of beef and veal products in People’s Republic of China, 2011–2020 (in kilograms) [6]

The growing demand for meat has driven the development of intensive animal production in large- and medium-scale farms, along with the application of high technology in the industrialisation and modernisation of the livestock sector, thus facilitating disease surveillance and control as compared to traditional smallholder backyard systems. Furthermore, improved transportation infrastructure and cold-chain techniques have eased domestic and cross-border movements of live animals and their products, following the market demand and price differentials. These improvements have greatly increased meat availability in areas with high population density; however, they have also augmented the risk of rapid and far-reaching transmission of animal diseases such as FMD.

### Livestock movement patterns

The regional livestock movement pattern, especially in the Greater Mekong Subregion (GMS), has been regularly monitored over time. A 2015 study conducted by the OIE reviewed the movement pathways for large ruminants in the GMS [7]. The study shows that there have been considerable increases in the price of livestock in recent years and significant changes in the movement pathways of large ruminants in the region, with a notable shift from previous destinations in Malaysia towards strong markets in the People’s Republic of China (Figure 6). The study estimates an annual movement of almost one million heads of large ruminants into the People’s Republic of China from neighbouring countries in South-East Asia. Another important outcome of the study is the identification of new sources of livestock entering the region, with growing numbers of large ruminants from India and Bangladesh moving into Myanmar and Thailand. Increasing numbers of cattle being imported from Australia into Vietnam and Malaysia are also noted.



**Figure 6.** Movement pathways of large ruminants in the Great Mekong Subregion [7]

In a more recent study organised by the OIE in 2017 [8], increasing movements of pigs and goats from South-East Asia (mainly Thailand and Myanmar) towards the People’s Republic of China were observed. The movement pathways were found to be similar to those previously described for large ruminants by Smith *et al.* [7].

In short, regional livestock movements are characterised by extensive movements throughout the GMS, with large numbers of animals being transported immense distances and crossing national borders. The vast majority of cross-border animal movements within the region continue to occur unofficially, posing a significant challenge to the control of TADs, including FMD. The increasing influx of large ruminants from other regions poses an additional significant threat of introduction of exotic FMDVs. Improved regulation of livestock movements across the region and whole-of-region disease control programmes are highly desirable in order to mitigate the risk of long-distance transmission of FMD and other TADs.

### **Introduction and spread of African swine fever**

The SEACFMD sub-region was historically free from African swine fever (ASF) until the first outbreak was reported in the People’s Republic of China in August 2018. Since then, the virus has spread across the People’s Republic of China and is continuing to spread in East Asia, South Asia and South-East Asia at a worrying rate, as confirmed in Cambodia, Indonesia, Lao PDR, Mongolia, Myanmar and Vietnam, as well as several other countries adjacent to the SEACFMD sub-region.

The impacts of ASF in Asia concerning the production and consumption of pork are already becoming apparent. In heavily affected countries, pig populations have been devastated by the ASF epidemic, resulting in significant shortages in pork supply and driving pork prices to record highs [9, 10]. The marketing of pigs and pork products is further compounded by restrictions imposed by governments to contain the spread of ASF, including limitations on transportation and sales of live pigs and pork products from regions where ASF is present. Other implications include increased imports of pork from Europe and the Americas

to meet the pork supply shortage, as well as shifts in consumption towards other types of meat, such as poultry and red meat.

The impact of the ASF crisis on FMD control is also obvious. Most infected countries have had to shift resources towards controlling ASF, resulting in decreased activities for other diseases such as FMD [11]. On the other hand, pig producers who survive the ASF crisis tend to apply robust farm biosecurity measures to maintain a high level of herd health, which reduces the risk of other swine diseases, including FMD [11]. Moreover, at least part of the meat supply gap caused by reduced pork consumption is expected to be covered by an increased demand for beef and mutton [12]. This substitution effect is expected to stimulate an increased production and trade of ruminants and their meat at national, regional and global scales, leading to new opportunities and challenges for the control of FMD.

In resource-limited countries, any incursion of a new disease has an impact on the management of existing animal disease programmes and activities. Prior to ASF, during the initial years of SEAFMD, the highly pathogenic avian influenza (HPAI) epidemic beginning in 2004 impacted priorities and funds allocated for FMD control. A similar situation occurred during the incursion of highly pathogenic porcine reproductive and respiratory syndrome (PRRS) in Vietnam and other countries. In addition to the introduction of animal diseases, SEACFMD member countries have had to address the COVID-19 situation and its impact on Veterinary Services. Practical alternatives as well as cost-efficient synergies and strategies must be considered in order to maintain a minimum level of activities and prevent that all of the efforts and progress achieved in previous years are jeopardised [13].

### 3.3 Gaps in the Performance of Veterinary Services of Members

Appropriate capacity and capability of the Veterinary Services are essential for a country to design and implement disease control plans and, therefore, to move up through the PCP-FMD stages and the OIE official recognition pathway. Strengthening Veterinary Services is recognised in the Global FMD Control Strategy [14] as the second of three components to efficiently control and prevent FMD. It is referred to as the 'enabling environment' for FMD control.

To assess and strengthen the performance of its Members' Veterinary Services, the OIE has developed the Performance of Veterinary Services (PVS) Pathway, the OIE's flagship capacity building platform for the sustainable improvement of national Veterinary Services. The PVS Pathway empowers national Veterinary Services by providing them with a comprehensive understanding of their strengths and weaknesses using a globally consistent methodology based on international standards, enabling them to take ownership and prioritise improvements to their animal health system. The methodology is based on the assessment of 45 Critical Competencies (CCs) that contribute to the evaluation of countries' level of performance. Most SEACFMD member countries have shown a strong commitment to the PVS Pathway: by 2020, 10 of the 12 SEACFMD member countries had received PVS Pathway missions; of the two remaining countries, one is following a specific PVS approach and the other is considering engaging in the process.

To facilitate the implementation of the Global FMD Control Strategy, the PCP stages were linked to the CCs of the OIE Tool for the Evaluation of Performance of Veterinary Services (PVS Tool) [15]. This signifies that the reinforcement of Veterinary Services should be tailored to the needs and timeframe of the PCP stages (for more details see Part A, Section 5 of the Global FMD Control Strategy [14]). A total of 13 PVS CCs have been identified as directly relevant to the implementation of activities required at PCP Stage 1, 27 CCs were identified for PCP Stage 2, and 36 CCs for PCP Stage 3.

Similar work was undertaken to identify relevant CCs along the OIE PVS Pathway for official programme endorsement and official recognition of FMD freedom.

Countries have the responsibility to consider the gaps identified in their national PVS Pathway reports and to implement the recommendations contained therein. In an effort to identify and prioritise activities for the Roadmap 2021–2025, the OIE SRR SEA assessed the main common gaps among the ten countries which have had PVS Pathway missions. The required level of advancement of each relevant CC for countries at



PCP Stages 1 to 3 was used as a reference. According to their PVS Evaluation reports, more than half of the ten countries do not comply with the level expected for their respective PCP Stages under the following CCs:

- I.2.B. Competencies of veterinary para-professionals
- I.3. Continuing education
- I.8. Operational funding
- II.2 Risk analysis
- II.12.A. Animal identification and movement control
- III.5.B. Veterinary Statutory Body capacity
- III.6 Participation of producers and stakeholders in joint programmes
- IV.6 Zoning

It is important to note that some PVS Evaluations were conducted more than five years ago and thus their conclusions could be outdated. However, the main findings above are in line with feedback received from the field.

In addition to the above CCs that represent the priority areas of concern, specific gaps were also identified for countries sharing similar PCP Stages:

- For PCP Stage 1 countries, training will be needed to support field and laboratory activities to correctly recognise and diagnose FMD, and to collect and provide data for central Veterinary Services to conduct risk assessment. Basic institutional and legal infrastructure should be developed to support outbreak reporting and engagement with key stakeholders in FMD surveillance and control.
- Stage 2 countries will need a legal framework and the operational capacity of Veterinary Services to carry out FMD risk-based control activities, such as vaccination and outbreak investigation, development of public-private partnerships, and a robust animal health information system to monitor the impact of risk mitigation measures, among others.
- Stage 3 countries will require more resources than previous stages for rapid detection and response to all FMD outbreaks. An intensive surveillance system is requested and the reporting of suspected FMD cases should be encouraged and accepted by all stakeholders. The legal framework for disease control measures such as vaccination and movement control should be effectively enforced.
- Stage 4 countries will need a strong public-private partnership mechanism ready to support FMD eradication in at least one zone, which requires consistently involving all key stakeholders in FMD surveillance and control activities. Control measures in the endorsed national official FMD control programme should be agreed by all key stakeholders to ensure its effective implementation.
- FMD-free countries will need to maintain necessary resources over time in order to carry out key FMD prevention activities, such as passive and/or active surveillance, training, and public awareness campaigns.

## 4. SEACFMD Strategy for 2021–2025

### 4.1 Goal of the 6th phase of the SEACFMD Campaign

The goal of the 6<sup>th</sup> phase of the SEACFMD Campaign is:

**Strengthened Veterinary Services to effectively prevent, control and eradicate foot and mouth disease and other transboundary animal diseases.**

This goal will be achieved if the three criteria defined below are met:

#### i) Maintenance of freedom in officially FMD-free countries and zones

As of 1 January 2021, four members of the SEACFMD Campaign are officially recognised by the OIE as free from FMD without vaccination: Brunei (since 2008), Indonesia (1996), the Philippines (recognised as a free country in 2015 after having followed a zoning approach since 2002), and Singapore (1996). In addition, Sabah and Sarawak, the eastern part of Malaysia on Borneo Island, have been recognised as an FMD-free zone without vaccination since 2003. Countries and zones that are FMD-free are displayed in the map below (Figure 8).

#### ASIA AND PACIFIC: OIE Members' official FMD status map

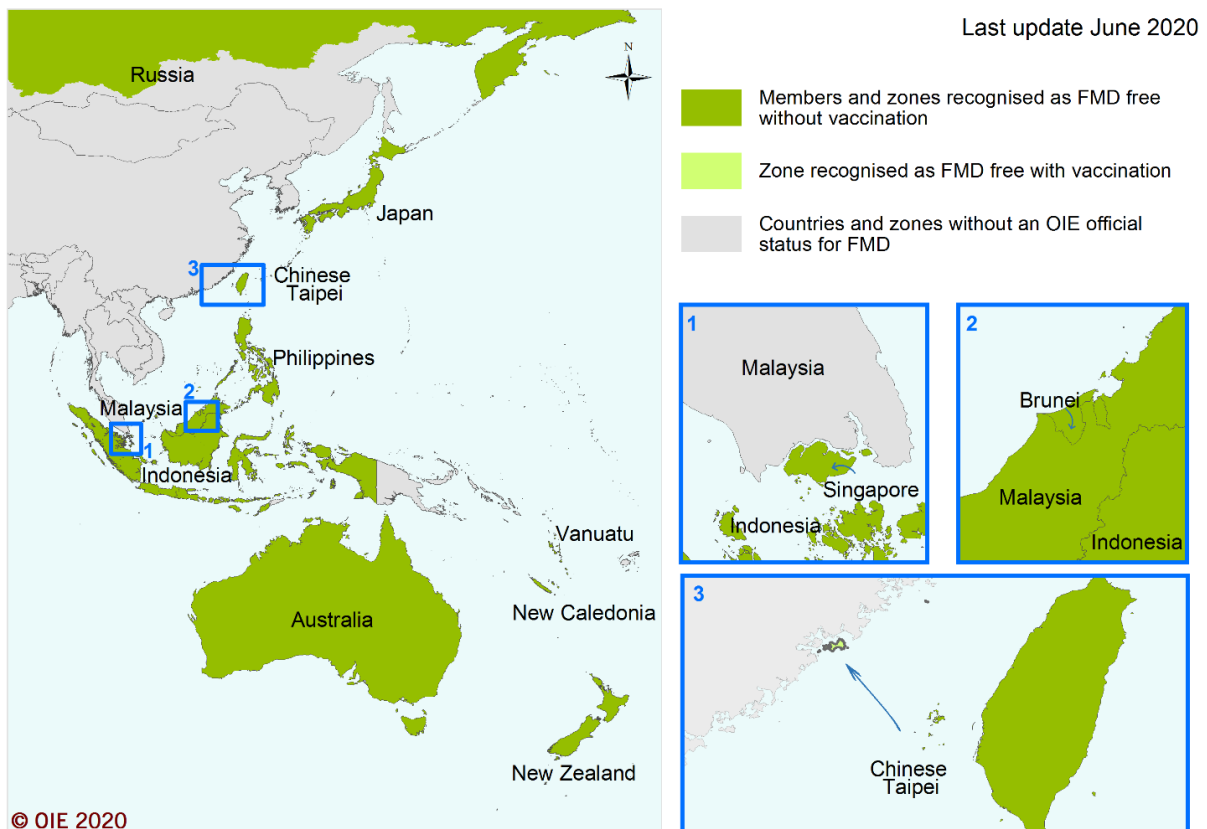
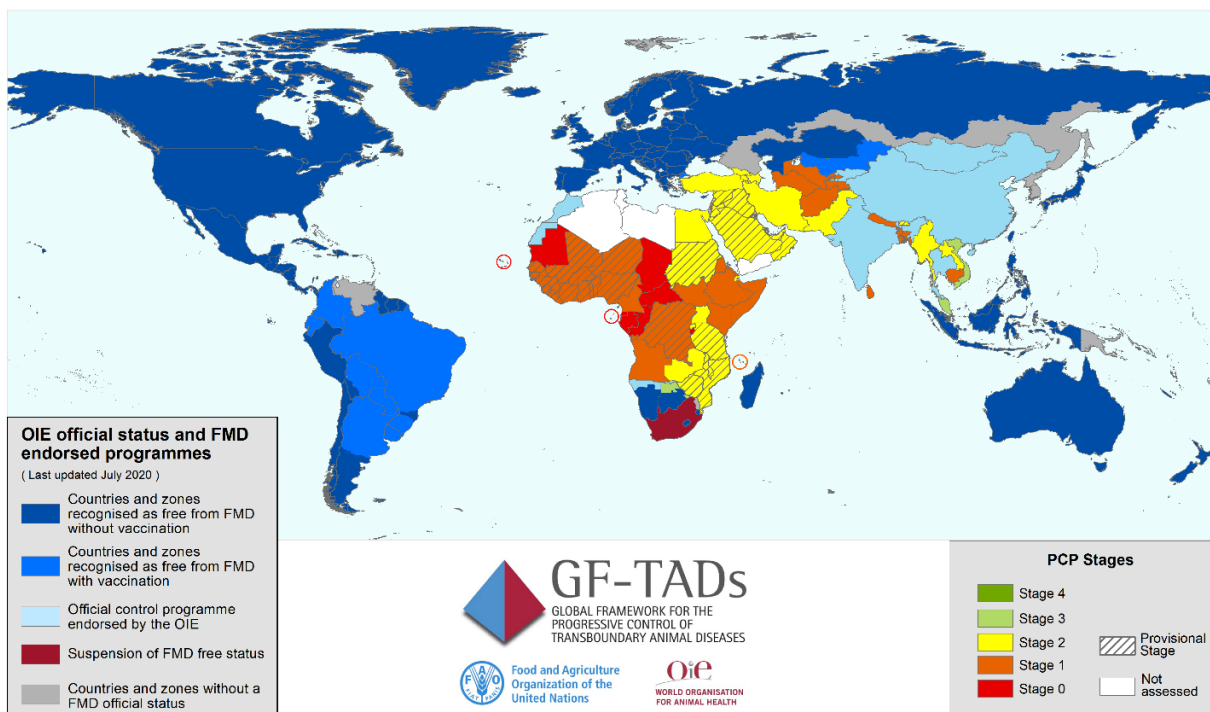


Figure 8. Official FMD status of OIE Members in Asia and the Pacific [16]

ii) **Maintenance and, where possible, improvement of infected countries' situations** (by reaching the next PCP Stage or step in the OIE procedure for official recognition of disease status and endorsement of national official control programmes)

In alignment with the Global FMD Control Strategy [14], the SEACFMD Campaign utilises the PCP-FMD tool, which is closely linked to the OIE procedures for the endorsement of official control programmes for FMD and for the official recognition of FMD freedom. The situation of SEACFMD member countries as of 1 January 2021 is shown in Figure 9. Three countries have an official control programme for FMD endorsed by the OIE (People’s Republic of China, Mongolia and Thailand). In addition, two countries are considered in PCP Stage 3 (Malaysia and Vietnam), two are in PCP Stage 2 (Lao PDR and Myanmar), and one in PCP Stage 1 (Cambodia).



**Figure 9.** Foot and mouth disease (FMD) situation: OIE official status, FMD endorsed programmes and FMD Progressive Control Pathway Stages (updated in October 2020)

### iii) Better preparedness and response to the introduction of exotic strains and other diseases

Member countries should focus on measures to prevent the incursion of FMD virus in FMD-free countries and zones; as well as the introduction and spread of exotic strains in FMD-infected countries. Countries should place emphasis on activities related to preparedness and contingency planning; early warning systems to prevent the introduction and spread of the virus; and early detection, rapid response and reporting systems.

In conclusion, the Roadmap 2021–2025 will be considered a success if:

- FMD-free countries and zones maintain their FMD-free status;
- Infected countries maintain their respective FMD PCP Stage or progress to the next PCP stage during the 6th phase of the SEACFMD Campaign;
- Veterinary Services of SEACFMD member countries are better prepared to the introduction of new strains and emerging diseases through awareness, continuous risk assessment, risk mitigation measures, contingency planning and simulation exercises.



## 4.2 Strategic objectives, outcomes and outputs

To support the achievement of the overall goal, two strategic objectives have been identified for Phase 6 of the Campaign:

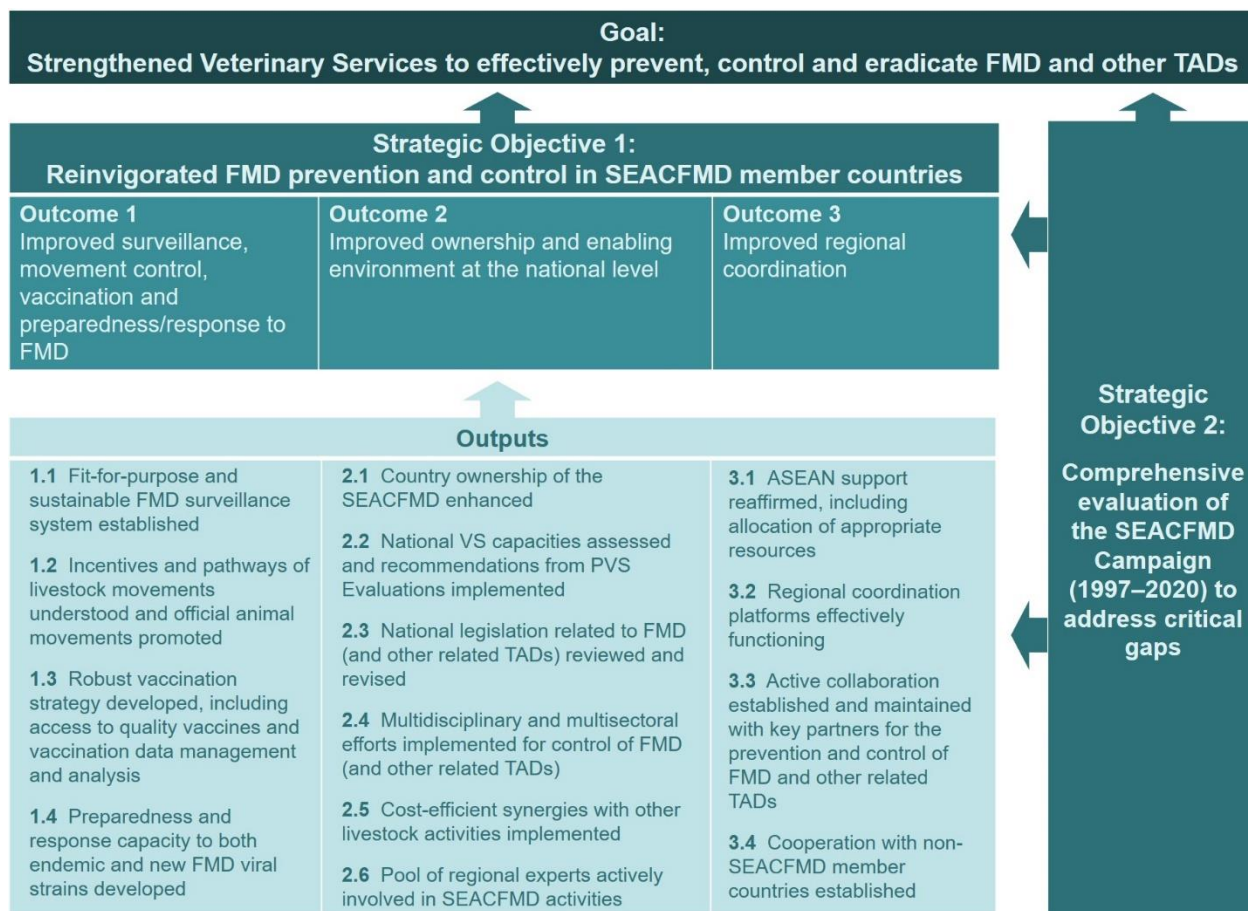
### 1. Reinvigorated FMD prevention and control in SEACFMD member countries

The first objective is to provide improved technical, policy and organizational guidance to effectively achieve the overall goal of the SEACFMD Campaign. The technical foundation of FMD control in the region, including surveillance, vaccination and animal movement, will be reviewed to identify the tools that are most suitable and are applicable to the dynamic changes in FMD epidemiology over the past few years. Reaffirmation of the political support from SEACFMD member countries will be sought to provide appropriate policy and legislative support, as well as resources to effectively implement FMD prevention and control. While coordination has been one of the strengths of the SEACFMD Campaign since its launch, there is a need to further strengthen collaboration in order to adapt to changes in the economic and political situation in the region. Overall, this objective aims to enhance the implementation of FMD prevention and control in the SEACFMD member countries.

### 2. Comprehensive evaluation of the SEACFMD Campaign (1997–2020) to address critical gaps

The second objective will provide overarching support to Strategic Objective 1. The comprehensive evaluation of the SEACFMD Campaign will be an in-depth assessment of the experiences and lessons learned since its launch in 1997. It will evaluate the technical, political and organizational aspects of the Campaign. Based on its findings and recommendations, the results of the comprehensive evaluation will be used to enhance the SEACFMD Campaign.

Based on these two strategic objectives, a series of outcomes have been identified as the steps that need to be taken to achieve the objectives of the SEACFMD Roadmap 2021–2025. These outcomes comprise the logical framework under which the various work plan activities will be implemented (Appendix C). The expected outputs from the activities, which will contribute to achieving the established outcomes, are listed and further described in the following sections. Figure 7 below provides the theory of change for the SEACFMD Roadmap 2021–2025.



**Figure 7. Theory of change (goal, objectives, outcomes and outputs) of the SEACFMD Roadmap 2021–2025**

## **Strategic Objective 1: Reinvigorated FMD prevention and control in SEACFMD member countries**

### **Outcome 1: Improved surveillance, movement control, vaccination and preparedness/response to FMD**

- Output 1.1:** Fit-for-purpose and sustainable FMD surveillance system established
- Output 1.2:** Incentives and pathways of livestock movements understood and official animal movements promoted
- Output 1.3:** Robust vaccination strategy developed, including access to quality vaccines and vaccination data management and analysis
- Output 1.4:** Preparedness and response capacity to both endemic and new FMD viral strains developed

### **Outcome 2: Improved ownership and enabling environment at the national level**

- Output 2.1:** Country ownership of the SEACFMD Campaign enhanced
- Output 2.2:** National Veterinary Service capacities assessed and recommendations from PVS Evaluation implemented
- Output 2.3:** National legislation related to FMD (and other related TADs) reviewed and revised
- Output 2.4:** Multidisciplinary and multisectoral efforts implemented for control of FMD (and other related TADs)
- Output 2.5:** Cost-efficient synergies with other livestock activities implemented
- Output 2.6:** Pool of regional experts actively involved in SEACFMD activities

### **Outcome 3: Improved regional coordination**

- Output 3.1:** ASEAN support reaffirmed, including allocation of appropriate resources
- Output 3.2:** Regional coordination platforms effectively functioning
- Output 3.3:** Active collaboration established and maintained with key partners for the prevention and control of FMD and other related TADs
- Output 3.4:** Cooperation with non-SEACFMD member countries established

## **Strategic Objective 2: Comprehensive evaluation of the SEACFMD Campaign (1997–2020) to address critical gaps**

The outcomes and impact of the SEACFMD Campaign since its launch will be assessed at both national level and within the OIE SRR SEA, and progress indicators will be defined to guide the implementation of the 6th phase of the Campaign.

## 4.3 Strategic Objective 1: Reinvigorated FMD prevention and control in SEACFMD Member Countries

### 4.3.1 Outcome 1: Improved surveillance, movement control, vaccination and preparedness/response to FMD

#### Output 1.1: Fit-for-purpose and sustainable FMD surveillance system established

General principles and essential elements of animal disease surveillance are set out in Chapter 1.4 of the OIE *Terrestrial Animal Health Code (Terrestrial Code)* [17]. In FMD, efficient surveillance is vital for countries to monitor their respective FMD situations, detect outbreaks early and initiate emergency responses, collect data for risk analysis, progress towards freedom status and substantiate FMD freedom. Surveillance is the basis for the design and implementation of any FMD control measures and for evaluating their impact.

Since its inception, the SEACFMD Campaign has continuously worked to improve FMD surveillance by strengthening Members' capacity and improving regional coordination. Under this framework, it has supported Members to promptly report to OIE-WAHIS (World Animal Health Information System) and has collaborated with the ASEAN Sectoral Working Group for Livestock (ASWGL) in developing the ASEAN regional animal health information system (ARAHIS) to support FMD outbreak reporting and information sharing in South-East Asia [18]. The SEACFMD Bulletins have been published on the OIE regional website on an annual basis since 2015 to summarise key FMD epidemiological changes in SEACFMD member countries [19]. In addition, various manuals have been developed and trainings organised under the SEACFMD framework to improve different stakeholders' capacity in disease surveillance, outbreak investigation and data analysis [20].

Up until 2020, a majority of SEACFMD member countries have relied mainly on the passive approach for FMD surveillance. However, studies have shown that significant under-reporting and under-detection of FMD outbreaks exist in the SEACFMD sub-region [21], which is due to several reasons, including the following:

- Although FMD is a notifiable disease by law for all OIE Members, regulations are not always enforced, which may be due to a lack of incentives to report and lack of punishment in case of failure to report;
- Many countries have limited resources allocated to the control of FMD in the face of many other pressing problems; therefore, the lack of response or support from the Veterinary Authorities to contain reported outbreaks may disincentivise reporting;
- When reported by farmers, the disease information flow is frequently interrupted due to the lack of infrastructure and human resources. For instance, many provincial offices use hard copies to record disease information, which cannot be shared with the central Veterinary Authority in a timely manner. Where computers are available, a lack of computer literate staff prevents their use. Another aspect to consider is the potential conflict of interest of community or village animal health workers, who may have more interest in treating a disease directly than in reporting it to the authorities.

The 6<sup>th</sup> phase of the SEACFMD Campaign will aim to address these gaps, while continuing to strengthen the regional network and countries' capacities in FMD surveillance and reporting through the following means:

- **Expand the surveillance network through integration with other livestock health frameworks, and development of new partnerships with wildlife authorities and integration of wildlife surveillance.** Disease surveillance is a public good that spans many sectors in the livestock production system and in wildlife. Cooperation with key stakeholder groups outside the Veterinary Services – such as farmer/trader associations, community or village animal health workers, research institutes, wildlife-related institutions and non-governmental organisations – could improve coverage of surveillance

activities and quality of the data, provided that all of this information is integrated into the national surveillance system.

- **Enable the socio-political and legislative environment to encourage disease reporting.** Many factors may prevent disease reporting, for example, lack of public awareness; lack of incentives for reporting; FMD control policies that cause economic losses (such as movement or trade restrictions and culling with insufficient or delayed compensation); fear of being blamed or punished for the outbreaks; and disappointment with the lack of response despite previous reporting. SEACFMD member countries are encouraged to identify the gaps that discourage disease reporting in the local socio-political and legislative context and to develop pragmatic work plans to make improvements. The OIE can support countries to review their national legislation on FMD reporting and management (see Output 2.2. of this Roadmap).
- **Improve information flow within the Veterinary Services.** In support of continuous improvements in surveillance systems at all levels, Members are encouraged to evaluate the efficiency of the current chain of reporting and to make changes to address the identified needs, such as defining clear strategies to foster timely reporting, providing feedback to users and stakeholders at all levels, and making data ownership transparent. Significant advocacy efforts are needed in order to engage all stakeholders. Infrastructure improvement is also essential to facilitate timely information flow, and this could be integrated into all activities with the aim to improve the national animal health database.
- **Strengthen countries' laboratory capacity in FMD detection and virus characterisation.** Early detection and characterisation of FMD viruses from field outbreaks are essential for tracing the source of the outbreaks, as well as for timely and effective vaccination to contain the outbreaks. This is especially pivotal for early warning systems and responses to newly emerging viruses or exotic viruses introduced from other regions. Members are encouraged to adapt the recommendations and standard operating procedures developed by the FMD Regional Expert Group for training and implementation in order to improve FMD field sampling, virus detection and genotyping, and serological testing.
- **Combine multiple surveillance approaches to improve knowledge of FMD epidemiology.** In SEACFMD countries, it is not uncommon for FMD to cause silent or mild infection without obvious clinical symptoms, such as in small ruminants and previously immunised herds. Combining passive clinical surveillance with other approaches would support a more comprehensive knowledge of FMD epidemiology. For example, targeted serological surveys and active surveillance are typical activities expected from countries in PCP Stage 2. Active ante- and post-mortem inspection (looking for signs of FMD) could support early detection or also increase confidence in FMD freedom.

In addition to the above general approaches, FMD-infected countries are further encouraged to take the following approaches:

- **Strengthen surveillance to monitor and evaluate the progress of the national FMD control programme.** Infected countries can monitor the impact of their national FMD control programme via their surveillance system. For instance, serosurveillance in vaccinated herds could provide valuable indications of FMD virus transmission (provided that the vaccine is appropriately purified) or whether the vaccination campaign has induced herd immunity above the required protective level. Nonetheless, increased FMD outbreak incidence may not necessarily represent the ineffectiveness of control measures, but could also be due to the strengthened surveillance and reporting framework.
- **For countries in FMD-PCP Stages 1 to 3:** Provide evidence to the SEACFMD Sub-Commission that they still meet the minimum requirements of their granted PCP Stage [22]. More specifically,
  - For the country in PCP Stage 1: finalise and implement the action plan to support the development of its RBSP and, eventually, to develop its RBSP for FMD control;
  - For PCP Stage 2 countries: identify funding sources and implement their RBSPs to progress along PCP Stage 2;

- For countries in PCP Stage 3:
  - monitor the implementation and impact of the RBSP;
  - if, and only if, the official control programme is proven effective in reaching its objectives and eradicating FMD in at least one zone, request the OIE's endorsement of the control programme. The endorsement will benefit countries in the following ways: (a) demonstrate the positive performance of national Veterinary Services; (b) advocate for the Veterinary Services with government agencies and other potential donors to gain more political and financial support; (c) strengthen trade negotiation incentives; and (d) receive advice from the OIE and its Scientific Commission for Animal Diseases (Scientific Commission) to progress towards FMD control and eradication.
- **For countries with an OIE-endorsed official control programme:**
  - Provide evidence with the annual reconfirmation that the endorsed national control programme is implemented and monitored in accordance with the requirements of the OIE *Terrestrial Code* [23]. Attention should be given to the quality, completeness, and timeliness of the submission of the annual reconfirmations;
  - If the official control programme has been successfully implemented and if the absence of FMD virus transmission can be demonstrated in at least one zone, countries should apply for the official recognition of zonal FMD freedom with vaccination;
  - The OIE SRR SEA will continue supporting these countries through the following approaches:
    - Strengthen countries' capacity to implement recommendations from the OIE Scientific Commission regarding the annual reconfirmation;
    - Support countries to share experiences and lessons learnt from the preparation of dossiers for the official recognition of disease status, FMD eradication, and OIE expert missions related to FMD status or endorsed official control programmes;
    - Support countries to gain expertise on the zoning approach in disease control and eradication;
    - Support OIE Headquarters in the follow-up and pre-analysis of the annual reconfirmations;
    - Provide technical capacity building on the surveillance to be conducted to substantiate disease freedom.

FMD-free countries are also encouraged to:

- **Maintain resources to sustain an early detection system for FMD.** Given that all of the FMD-free countries and zones in the SEACFMD sub-region have been free of the disease for more than a decade, it is essential to continue training and awareness-promoting activities to maintain vigilance of FMD; this includes laboratory capacity for correct and timely diagnosis of FMD. However, FMD-free countries frequently face continuing challenges to maintain financial and political support for exotic or eradicated diseases. It is thus essential for Veterinary Authorities in these countries to continue to advocate their respective governments and to explore other potential resources to maintain key activities that enable the early detection of any FMD incursion.
- **Explore cost-effective surveillance based on risk assessment.** While challenged by declining budgets for FMD activities, FMD-free countries are encouraged to explore cost effective surveillance systems to substantiate freedom with an appropriate level of confidence, in compliance with the OIE *Terrestrial Code* [24]. Depending on the assessed risk, consideration could be given to risk-based surveillance, to non-pathogen specific surveillance, and to integrated surveillance (e.g. including data from slaughterhouse surveillance). In practise, opportunities could also be explored to integrate FMD surveillance activities with other livestock health related activities/programmes, as indicated in Output 2.4. Similarly integration of cost-effective surveillance activities in wildlife could be considered.



- **Confirm the maintenance of their FMD-free status on an annual basis** in order to retain their official recognition from the OIE, in accordance with the requirements of Chapter 8.8 (Infection with foot and mouth disease) [25] of the OIE *Terrestrial Code*. As stated in the OIE procedures for reconfirmation [26], annual reconfirmation should be submitted in November each year, preferably via the dedicated, secure online system [27], accompanied by the relevant supporting documents. The OIE SRR SEA will continue to support countries upon request with their obligations for the annual reconfirmation of their FMD-free status and will act as the interface between countries and the OIE Status Department.

## Output 1.2: Incentives and pathways of livestock movements are understood and official animal movements are promoted

In the SEACFMD sub-region, animal movements, particularly cross-border movements, remain the most important driver of the long distance spread of FMD. This has been seen multiple times with the inter- and/or intra-regional spread of FMD viruses, including the recent incursion of FMD virus O/ME-SA/India2001 from South Asia and its continued spread in the SEACFMD member countries since 2015 [1].

The regional movement pattern of cattle and buffaloes has changed significantly since 2009, from the prior Myanmar-Thailand-Malaysia route to the more recent diverse and long-distance routes across South-East Asia destined for the People's Republic of China [7]. Following similar routes, there is an increasing trade of pigs and goats from South-East Asia to the People's Republic of China [8]. Another significant change is the influx of cattle and buffaloes from South Asia into South-East Asia, most of which are finally traded to the People's Republic of China.

In most SEACFMD member countries, the major driver of livestock cross-border movements is trade, following price differentials and market demands across the region. It has also been observed that the volume of livestock movement follows a seasonal pattern, with high demand for consumption of livestock during religious festivals in Malaysia and southern Thailand, Tet in Vietnam, and Lunar New Year in the People's Republic of China.

In addition to live animals, cross-border trade of livestock products, including commodities of high FMD risk, are also common [28].

For domestic movements apart from trade, seasonal factors may also influence animal movement patterns. For example, in Mongolia and some parts of the People's Republic of China, pastoral production systems call for regular transhumance in search of grazing and water and play a significant role in disease spread. In central Myanmar, livestock are moved from lowland to highland areas before the start of rainy season to avoid floods. Outbreaks are commonly seen when animals return to the lowlands after the rainy season.

While most of the cross-border animal movements occur unofficially, efforts have been made to officialise cross-border movements since 2015. As a result, the People's Republic of China, the main importer of livestock from South-East Asia, has signed an agreement with Lao PDR and Myanmar to create official channels for trade of livestock and livestock products through the establishment of disease 'control zones'.

During the 2021–2025 phase, the SEACFMD Campaign will continue to promote the pragmatic implementation of OIE standards for the safe trade of animals and animal products, which provide guidance to members in developing bilateral protocols for cross-border movements. The promotion of public-private partnerships will also be pursued (please refer to Output 2.4). Studies to understand the dynamics of and monitor the changes in the movement of animals and animal products will remain a priority, in order to track the risk pathways of FMD spread and anticipate or adjust control measures. An improved understanding of the behaviours of the various stakeholders involved in domestic and international livestock movements – animal handlers, transporters, livestock market owners, and small/medium/large-scale traders – will also be needed to better engage them in disease surveillance and control.

### Output 1.3: A robust vaccination strategy, including access to quality vaccines and management and analysis of vaccination data

While the decision to use vaccination is a Member's responsibility, recommendations and guidance on when and how to use vaccination are widely available. In particular, SEACFMD countries are invited to consider the following: Chapter 4.18. on vaccination of the OIE *Terrestrial Code* [29]; Section 2.3. on veterinary vaccines of the OIE *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals (Terrestrial Manual)* [30]; and the FAO/OIE guidelines on FMD vaccination and post-vaccination monitoring [4].

Infected countries in the SEACFMD sub-region have traditionally vaccinated against FMD for different purposes: to limit the spread of ongoing outbreaks; to protect higher value animals, herds or production systems; to limit the impact of FMD; to pilot a vaccination strategy in certain areas; or to establish FMD-free zones with vaccination. FMD-free countries in the sub-region may have included vaccination as a response, containment and control strategy in case of a re-incursion of FMD.

When developing their vaccination programmes, SEACFMD countries should establish clear objectives, design a strategy, identify matching vaccine strains, ensure the quality of the supply chain and act of vaccination, identify all stakeholders, their involvement and the best approach for communication and engagement, explore public-private partnerships and funding sources for sustainable vaccination, and explore possible synergies with other animal health activities. Countries conducting FMD vaccination should collect, store and compile data on vaccination activities and conduct regular post-vaccination monitoring to assess if the objectives of vaccinations have been met.

During the 2021–2025 Roadmap, SEACFMD countries conducting vaccination will be encouraged to share information on vaccination activities and post-vaccination monitoring. This will allow the OIE SRR SEA to map out the vaccines used and the vaccination implemented in the region, which will help to better identify the gaps and propose priority actions for the SEACFMD Campaign.

Moreover, those countries (especially those in PCP Stage 3 and above) not yet using a vaccine compliant with the OIE *Terrestrial Manual* [31] will be encouraged to develop a plan and timeline for their transition to a compliant vaccine. Similarly and in accordance with the OIE *Terrestrial Code*, countries exporting livestock or livestock products will also be encouraged to use vaccines compliant with the OIE *Terrestrial Manual* to vaccinate animals for export.

Countries producing their own vaccines or importing vaccines will be encouraged to ensure that the vaccines are compliant with the OIE *Terrestrial Manual* recommendations. Countries will also be encouraged to review whether the regulations facilitate vaccine imports and are not unduly restrictive, cumbersome, or costly – situations which may lead to the development of parallel or black markets of low-quality vaccines.

The OIE SRR SEA will provide technical support on vaccination strategies and vaccine quality control. In addition, it will explore possible ways to coordinate regionally to facilitate vaccine quality control and improve countries' access to good quality FMD vaccines. Linkages with the OIE Reference Centres on vaccine quality will also be considered.

### Output 1.4: Developed preparedness and response capacity to both endemic and new FMD viral strains

One of the indicators of success of this Roadmap is:

- For FMD-free countries and zones to maintain their favourable free status, and
- For FMD-infected countries to prevent the introduction and spread of exotic strains.

To reach these desired results, countries should better prevent this disease threat and be prepared in advance to respond to it efficiently. Corresponding activities at country-level should include:



- Preparedness and contingency planning;
- Design and continuous implementation of early warning systems to prevent the introduction of the virus in the territories, including import protocols;
- Strengthening of early detection, rapid response and reporting systems;
- Communication and awareness (including at higher level for the maintenance of political commitment and resources in FMD-free countries), such as the collection and diffusion of success stories and the identification of support tools (such as the PVS Budget Advocacy Tool).

To achieve Outcome 1, focus should be made on activities related to preparedness and contingency planning, systems to prevent the introduction of the virus into territories, and early detection systems. While countries will be encouraged to plan and conduct these key activities, the OIE SRR SEA will propose a wide range of capacity building activities on emergency preparedness planning and on conducting simulation exercises. This may include workshop-like activities, technical review of drafted plans, support for simulation exercises, and bilateral exchanges between countries. The OIE will also conduct activities related to early detection and reporting systems (see Output 1.1). Finally, the OIE will continue to support countries in analysing and mapping risks of future incursions of exotic FMDV strain involving imports and movements of live animals and animal products.

#### 4.3.2 Outcome 2: Improved ownership and enabling environment at national level

##### Output 2.1: Country ownership of the SEACFMD Campaign enhanced

In order to enhance ownership of the SEACFMD Campaign at regional and national levels, the governance of the SEACFMD Sub-Commission was revised such that only OIE Delegates can vote on the Sub-Commission's policies and decisions and be elected to the key positions of the Sub-Commission. The Sub-Commission will provide the overall guidance, policy development, and review of the SEACFMD Campaign.

The ownership of the campaign is essential to ensure full engagement and effective implementation of the activities at both national and regional level. It is expected that ownership from member countries will help the campaign to achieve desired impact and equally important is the sustainance of the FMD prevention and control activities in both endemic and free countries. Member countries' national FMD control plans should be updated in line with the strategic framework and consistent with each country's PCP-FMD stage.

As it may be difficult for Veterinary Services to maintain political commitment and resources for a disease that has been eradicated within their borders, advocacy with high-level decision-makers will also be needed. In such cases, secure support to enhance emergency preparedness planning, the communication of success stories, identification of support tools (such as the PVS Budget Advocacy Tool), and organisation of high-level meetings will be considered. Additionally, cost-effective synergies with other livestock activities will be explored, as described under Output 2.5.

##### Output 2.2: National VS capacities assessed and recommendations from PVS evaluation implemented

As mentioned in section 3.3., strengthening Veterinary Services is recognised in the Global FMD Control Strategy as an essential component to efficiently control and prevent FMD [14]. Countries that have the ambition to control or eradicate FMD should ensure that their Veterinary Services have the resources and institutional, financial, logistical, and technical capacities to plan and implement FMD control/eradication measures.

The OIE has developed a set of tools to support its Members in strengthening their Veterinary Services. The OIE PVS Pathway [32] offers a number of evaluation, planning and targeted support tools. While these

tools offer a holistic approach, they are also relevant in the context of implementing control strategies for FMD, as well as any other animal diseases.

In South-East Asia, many countries have received PVS Pathway missions and several gaps of critical importance for FMD control and prevention have been identified (see section 3.3.). In addition, the OIE delivered a PVS Pathway Orientation workshop in December 2019 in Bangkok, Thailand to provide background information on the different options offered by the PVS Pathway and to assist Members in identifying the type of support they may need to request under the PVS Pathway [33].

During the 2021–2025 Roadmap, the OIE will encourage and support SEACFMD member countries that wish to further benefit from the PVS Pathway by requesting a PVS Evaluation, PVS Evaluation Follow-up, PVS Gap Analysis, Strategic planning, or Veterinary Legislation Support Programme mission. SEACFMD countries will also be supported if they wish to conduct a PVS self-evaluation to identify gaps in implementing FMD-related activities.

With reference to section 3.3. and due to the close link between the PVS Pathway and PCP-FMD, SEACFMD countries are encouraged to identify and monitor the PVS Critical Competencies that do not reach the expected level for their respective PCP-FMD stages, and thus should be strengthened to better support their national FMD strategy, and to plan activities accordingly to strengthen these CCs.

Similar to what was done prior to drafting the 2021–2025 Roadmap (see section 1.2), the OIE SRR SEA will continue to make use of the PVS Pathway findings to identify gaps, objectives and a possible way forward when developing its work plan and proposing regional activities related to this output.

### **Output 2.3: National legislation related to FMD (and other related TADs) reviewed and revised**

Appropriate veterinary legislation is critical to support Veterinary Services' control of major TADS, including FMD. The OIE *Terrestrial Code* Chapter 3.4 on veterinary legislation [34] provides the minimum standards of legislation needed for the effective operation of Veterinary Services. The Veterinary Services need legislation to have the authority to carry out key disease control functions, such as epidemiological surveillance; early detection and reporting of animal diseases; rapid response to and prevention and control of animal disease emergencies; animal movement control; institution of proper biosecurity; and certification of the health status of animals and animal products for export.

For FMD endemic countries, secondary legislation may focus on effective control measures to reduce disease prevalence. This may include legislation and regulations to support effective surveillance, early detection and response to outbreaks, effective vaccination, and animal movement management and quarantine. In FMD endemic situations, a stamping out policy may not be effective, and will only push the farmers and even local officials to hide outbreaks, unless there is a legal basis for compensation and an effective mechanism and sufficient funds to administer a fair and transparent compensation scheme. For instance, if the legislation requires local authorities to use their own resources to stamp out all FMD affected and exposed animals, the tendency of these local authorities will be not to report outbreaks and to avoid pressure from the central government. In such cases, farmers, and particularly commercial farms, would hide outbreaks to avoid the closure of their farms. Current policies and legislation in endemic countries that disincentivise early reporting should be reviewed and revised to make them more pragmatic. The key to success in reducing FMD prevalence in an endemic area is to get a timely and realistic assessment of the FMD situation in order to effectively control the disease. This can only happen if existing policy and legislation provide an enabling environment to incentivise farmers, local Veterinary Services and government authorities to report FMD outbreaks promptly and in full transparency.

At the start of the implementation of the SEACFMD Roadmap 2021–2025, an assessment will be conducted to benchmark the existing legislation, as well as the current gaps. It is crucial to identify which policies and legislation are effective, and which are irrelevant and impractical. The assessment will focus on legislation

related to surveillance, early reporting and response, animal movement and biosecurity, and quality of vaccines and vaccination policy, among others.

#### **Output 2.4: Multidisciplinary and multisectoral efforts implemented to control FMD (and other related TADs)**

Although veterinarians and veterinary paraprofessionals are the leading professionals in animal health, they are not the only stakeholders involved in this field. Farmers, intermediaries, traders, market and slaughterhouse staff are also directly involved and are in daily contact with animals. They are the decision-makers at the animal level, and Veterinary Services cannot control FMD without their full commitment.

To engage these stakeholders in FMD control, sciences such as sociology, economics, and possibly anthropology and environmental science need to be considered. Skills in communication and advocacy are also needed to help generate behavioural change.

Similarly, communications skills are also required to convey convincing messages to high-level decision-makers in order to gain or ensure their support for animal health policy and the management of Veterinary Services.

In previous Roadmaps, various socio-economic studies were conducted, including measuring the financial impact of FMD on smallholder farmers and assessing the impact of outbreaks on households according to gender and financial status [35]. Knowledge, attitude and practices (KAP) surveys were also conducted to determine the behaviour of farmers towards FMD control.

During the 2021–2025 phase, the OIE SRR SEA will continue activities involving socio-economic science to better understand farmers' and traders' reluctance and incentives in FMD control activities. Capacity building on risk communication will also be proposed. Finally, countries will be encouraged to develop multidisciplinary activities and teams to improve stakeholders' involvement.

In addition, in most countries, the public sector alone cannot conduct all of the activities needed to control FMD or to maintain freedom from FMD. Close partnerships with the private sector have the potential to improve the quality of Veterinary Services and should be considered to improve the robustness and sustainability of animal health systems.

The OIE encourages SEACFMD countries to make use of the *OIE PPP Handbook: Guidelines for Public-Private Partnerships in the veterinary domain* [36]. Activities under this output will include the definition of the SEACFMD Private Sector Consultative Committee's Terms of Reference and its involvement in relevant SEACFMD activities and meetings. The creation of a sub-regional network of representative traders will also be explored as an acknowledgement of their important role in FMD transmission in the sub-region and, thus, their potential role in FMD control.

#### **Output 2.5: Cost-efficient synergies with other livestock activities implemented**

Since the establishment of the SEAFMD in 1997, some member countries have gradually shifted resources towards other emerging/priority diseases, such as HPAI since 2005, PRRS since 2007, and, more recently, African swine fever (ASF) since 2018. All SEACFMD member countries have other priority livestock activities in addition to FMD prevention or control. Nonetheless, given the significant negative impacts of FMD, owing to the loss of livestock production and trade restrictions, the SEACFMD Campaign supports countries to continue making efforts in progressing FMD control or maintaining freedom status.

As promoted by Component 3 of the Global FMD Control Strategy (Prevention and control of other major diseases of livestock) [14], the cost-effectiveness of FMD activities at the national level can be improved significantly through appropriate integration and synergies with other disease monitoring, surveillance and control initiatives, or with production-related activities. The list of major livestock diseases may vary according to the needs and priorities of individual countries. Common diseases that may be considered for control alongside FMD include the following:

- In large ruminants: haemorrhagic septicaemia (HS), brucellosis, contagious bovine pleuropneumonia, tuberculosis, anthrax, blackleg, lumpy skin disease (LSD) and rabies.
- In small ruminants: peste des petits ruminants (PPR), sheep and goat pox, and brucellosis.
- In pigs: classical swine fever, ASF, PRRS, porcine epidemic diarrhea, and Aujeszky's disease.

In the 6<sup>th</sup> phase of the SEACFMD Campaign, members will be encouraged to actively explore opportunities to synergise FMD control activities with other health activities via the following approaches:

### **Combine activities to improve working efficiency**

FMD activities could be potentially combined with other health-related activities to improve the working efficiency of Veterinary Services. For example, FMD training could be synergised with animal nutrition programmes; FMD vaccination in cattle could be combined with vaccination against HS, anthrax and blackleg. In FMD-free countries, awareness building on FMD prevention could be combined with the extension campaign and training for other diseases, such as PPR.

### **Broaden programme effects to achieve greater benefits**

Key approaches to address infectious diseases, especially TADs, are often common horizontal approaches, such as movement control and biosecurity.

Controlling the movement of livestock has continuously been a key component of the SEACFMD Campaign, under which various initiatives and activities have been instituted. Legislation and control measures to strengthen movement regulation and border control have a broader impact beyond FMD control: they benefit the prevention or containment of other livestock diseases.

Similarly, poor biosecurity practices in livestock production and movements have been considered as major constraints in FMD control. With the recent massive threat posed by ASF in the SEACFMD sub-region, increasing efforts have been exerted by countries and international organisations to strengthen biosecurity within both country borders and pork production units. Greater awareness of biosecurity in the livestock sector in general can reduce the risk of all major diseases, and benefit agricultural industries and the social economy as a whole.

### **Share resources to maximise the utilities**

Veterinary Services in most SEACFMD member countries face challenges of resource limitations, and the efficient allocation of existing resources is challenging. Countries could actively explore opportunities to integrate resources, programmes and activities between different sectors for optimal use of resources. For example, the cold chain facility of the human health sector could be potentially utilised by the Veterinary Services for the delivery of vaccines for FMD and other animal diseases. In addition, some countries have established well-equipped FMD laboratories that could be expanded for the diagnosis of other diseases and *vice versa*.

## **Output 2.6: Pool of regional experts actively involved in SEACFMD activities**

The SEACFMD Campaign is a coordination and cooperation mechanism to facilitate information and experience sharing between OIE Members in order to address FMD challenges. Since its establishment, the SEACFMD Campaign has been supporting the efforts of its member countries to improve institutional and technical capacity in FMD risk control, for example, by advocating at the highest levels of national Veterinary Services; building capacity at regional, national and field levels; collaborating with partners; and publishing manuals on key technical topics [25].

Expertise has been built in the sub-region and many countries have high-quality experts on FMD-related matters. Some of them have the potential to be recognised at regional and possibly international level. The 2021–2025 Roadmap will identify those experts and explore ways to expose them to regional and/or international activities through the following approaches:

### **Identification of national experts/laboratories**

Member countries will be encouraged to identify national experts and actively expose them to regional and international activities, such as participation in conferences, trainings, missions and webinars.

Countries and experts from national FMD laboratories may consider joining the OIE Laboratory Twinning Programme with an existing OIE Reference Laboratory or Collaborating Centre. This would strengthen the national and regional expertise with access to broader technical knowledge and create joint research opportunities. The whole region would benefit in turn from stronger technical support on disease surveillance and control.

### **Increase involvement of national experts in regional/international activities**

The OIE will establish an 'expert pool' for various FMD-related technical fields, such as risk assessment, border control, outbreak investigation, and emergency preparedness, among others. Experts would then be consulted by the SEACFMD Sub-Commission or the OIE SRR SEA to share knowledge on specific topics and to support the development of strategies or technical manuals to address regional needs. Experts will also be invited by the OIE SRR SEA to contribute to regional 'training of trainers' workshops. As a result, they will progressively acquire more knowledge and experience, enabling them to better contribute to FMD-related activities at national level and beyond.

## **4.3.3 Outcome 3: Improved regional coordination**

### **Output 3.1 ASEAN support reaffirmed, including allocation of appropriate resources**

Political commitment is critical to the success of the SEACFMD Campaign. The engagement of regional political organisations, such as ASEAN, has been identified since the start of this programme as an essential element for its success. ASEAN provides a venue for promoting member country ownership, which in turn enables the sustainability of the Campaign. Thus, during Phase 6 of the SEACFMD Campaign, it is critical to obtain from ASEAN a reaffirmation of its support to control and eradicate FMD in the region.

To show their continued commitment to the Campaign, Members should allocate human and financial resources to the implementation of their respective national FMD plans. In the initial stages of this Roadmap, countries may have to review and update their national FMD plans in order to align with the new Roadmap. Each country may have different target dates of what to achieve in consistent with the overall target of the Roadmap.

### **Output 3.2: Regional coordination platforms effectively functioning**

As discussed in section 1.1, the main reason for the establishment of the Regional Coordination Unit in 1997 was to serve as a linchpin for the coordination of FMD control, as well as the monitoring and evaluation of progress at the sub-regional level. The functions of the RCU were subsumed into the OIE SRR SEA when it was established in 2010. The SRR SEA supports OIE Members by coordinating the SEACFMD Campaign and by providing technical support; it also serves as a reservoir of skills, knowledge, and information for access by Members.

The OIE SRR SEA is hosted by the Government of Thailand, which also acts as the ASEAN lead country for FMD control.

The basic concept is for the SRR SEA to provide professional coordination of animal health activities between countries, while Members are responsible for their own national FMD control programmes. The SRR SEA helps to identify programme weaknesses, supports corrective actions, and ensures that coherent strategies and agreed outcomes are in place. The SRR SEA has a central role in the overall coordination of FMD-related activities in the sub-region, which involves, but is not limited to, the following:

- Organise and facilitate regular regional coordination meetings (Sub-Commission for OIE Delegates, Steering Committee, National FMD Coordinators, regional Laboratory Network, and regional Epidemiology Network);
- Facilitate the development of the regional Roadmap and associated strategies;
- Assist with reviews of national FMD plans and programmes;
- Manage the FMD database for the region and links to animal health information systems, and regularly issue an epidemiological analysis of the FMD situation;
- Maintain coordinated communications, media development, public awareness and training;
- Enable Members to help each other in a synergistic manner;
- Provide technical support as needed by Members, including technical training;
- Provide guidance in attracting funding for Members;
- Maintain the link between the OIE and ASEAN;
- Enhance private sector support for FMD control through the Private Sector Consultative Committee;
- Ensure productive relationships with complementary programmes;
- Facilitate and identify priority research studies;
- Develop regional expertise on FMD control.

During the 6<sup>th</sup> phase of the SEACFMD Campaign, regional coordination will be further strengthened with firmer commitments from Members. In line with Members' willingness to increase national and regional ownership (see Output 3.1.), the regional coordination function will not lie exclusively with the SRR SEA; it will also include the active involvement of the SEACFMD Sub-Commission through its Steering Committee and its networks (National Coordinators, laboratory, epidemiology).

### **An empowered Steering Committee**

The Steering Committee members will be expected to play a more active role to steer and coordinate the SEACFMD Campaign, with secretariat support from the SRR SEA. In particular, and according to its newly revised Terms of Reference, the Steering Committee will:

- Oversee the implementation of the SEACFMD annual work plan and the 2021–2025 Roadmap;
- Provide policy, strategic and governance advice to the Sub-Commission and to the SEACFMD Secretariat;
- Provide advice on working arrangements with related FMD management programmes and consistency with the recommendations of OIE/FAO Global FMD Conferences;
- Promote the SEACFMD Campaign;
- Identify regional priorities.

### **Strengthened SEACFMD LabNet and EpiNet**

The SEACFMD laboratory and epidemiological networks (known as SEACFMD LabNet and EpiNet, respectively) are essential for disseminating among Members FMD surveillance and epidemiological data, which are pivotal to a regional coordinated effort on FMD control and prevention.

The 6<sup>th</sup> phase of the SEACFMD Campaign will aim to further strengthen the regional LabNet and EpiNet to better coordinate activities, harmonise approaches and enhance the quality of FMD information, which are



critical in the implementation of the SEACFMD Roadmap. More specifically, the SEACFMD Roadmap 2021–2025 will focus on the following:

Reviewing the Terms of Reference, including the modus operandi to empower the EpiNet and LabNet

- Update of the terms of reference for LabNet and EpiNet for the SEACFMD Sub-Commission’s endorsement;
- Nomination/confirmation by each country of national focal points for LabNet and EpiNet;
- Nomination/election by LabNet and EpiNet of a leader for each network, who will be responsible for the following, with assistance from the OIE SRR SEA: (i) manage and coordinate each network; (ii) follow up on recommendations made at the network meetings; and (iii) monitor progress along each network’s work plan;
- Development and implementation of the respective LabNet/EpiNet work plans to be endorsed by the SEACFMD Sub-Commission. This should include consideration of the recommendations of the Regional Expert Group for FMD.

Improving regional coordination

- Regular online SEACFMD EpiNet and LabNet meetings will be organised between physical meetings to periodically monitor progress against milestones and facilitate timely information and experience sharing;
- Between meetings, the OIE SRR SEA, together with the leaders of EpiNet and LabNet, will organise and maintain activities related to each network under the SEACFMD framework;
- SEACFMD member countries will implement regional harmonised FMD diagnosis and test quality control procedures as recommended by LabNet and the Regional Expert Group for FMD, which will facilitate the exchanges of laboratory materials, diagnostic results, and expertise between countries;
- SEACFMD member countries will submit FMD samples or share FMDV genetic data to OIE Reference Laboratories on a regular basis. Results, as well as FMD outbreak data and epidemiological findings, will be shared within the networks and reported in a timely manner in OIE-WAHIS and/or ARAHIS. This will allow a better understanding of the FMD molecular epidemiological features and virus transmission pathways in the region;
- The OIE SRR SEA will regularly update the SEACFMD website for real-time information sharing between OIE Members and partners;
- The OIE SRR SEA will issue and disseminate regular reports on the updated regional FMD situation, epidemiological activities, and publications related to the SEACFMD Campaign;
- SEACFMD member countries will share technical manuals, training/ advocacy materials, and FMD control plans within the networks through an agreed platform (e.g. SEACFMD website).
- OIE Reference Laboratories within the SEACFMD network will continue to play a leading role in providing technical support and reagents to support FMD virus diagnosis in SEACFMD member countries. They will issue and disseminate annual reports to summarise the FMD status in the region.

Strengthen the links with other networks/activities

- The OIE SRR SEA will collate and disseminate reports from global FMD meetings or training courses from other regions, such as the annual OIE/FAO Reference Laboratory meeting report, abstracts from meetings of the Global FMD Research Alliance (GFRA) and European Commission for the Control of Foot-and-Mouth Disease (EuFMD), and information from FMD-related online courses;
- The OIE SRR SEA will invite international experts to SEACFMD meetings on an *ad hoc* basis to benefit from their expertise and experience;

- The OIE SRR SEA, in collaboration with Members and other international organisations, will establish a communication mechanism for collaboration and information exchange with other networks in the region, such as the ASEAN Veterinary Epidemiologists Group (AVET) and ASEAN Laboratory Directors' Forum. This will further strengthen a harmonised regional effort on FMD control, facilitate information and knowledge sharing, and avoid overlapping.
- SEACFMD member countries, with support from the OIE SRR SEA, will explore synergies between EpiNet, LabNet and other animal disease networks to maximise resources and expertise.

### **Output 3.3: Active collaboration established and maintained with key partners for the prevention and control of FMD and other related TADs**

From its inception, the SEACFMD Campaign has established institutional arrangements for closer cooperation with organisations working on FMD control in the region. With limited resources, it is imperative to ensure synergies and coordination in the implementation of activities to help countries to control FMD.

FAO is one of these key partners. It has been an active member of the SEACFMD Sub-Commission and Steering Committee, and has supported SEACFMD from the start through its various projects and programmes, ranging from capacity building to pilot vaccination programmes and value chain studies. The launching of the Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs) in 2004 further strengthened the existing cooperation between FAO and the OIE in the control of TADs, including FMD. The SEACFMD Coordinator has regularly participated in the GF-TADS Regional Steering Committee meetings and provided updates on FMD control.

Political commitment has been and is still critical to the success of the SEACFMD Campaign. As mentioned under Output 3.1, the SEACFMD Campaign will seek reaffirmation from ASEAN of its support to control and eradicate FMD in the region.

Research institutions such as ILRI and CIRAD have regularly attended the Sub-Commission meetings and provided expertise for some of the research outputs of SEACFMD. The GFRA consortium, of which some of the FMD laboratories in the region are members, has been an active partner in FMD research collaborations. Donors such as the Asian Development Bank and Japan International Cooperation Agency have partnered with SEACFMD in many animal movement studies and projects related to sanitary and phytosanitary measures.

The SEACFMD Campaign will continue to further strengthen its collaboration with existing and future partners in the region. It will invite them to its institutional meetings, such as the Sub-Commission and National Coordinators meetings. Likewise, the SEACFMD Coordinator will actively participate in the activities organised by partners.

### **Output 3.4: Cooperation with non-SEACFMD member countries established**

In recent years, several countries have expressed an interest to participate in SEACFMD activities. These include Timor Leste and Papua New Guinea, which share a land border with Indonesia – an officially recognised FMD-free country and member of the SEACFMD Campaign. Neither country has ever reported FMD. In addition, Timor Leste is a candidate to become the 11th member of ASEAN.

While the People's Republic of China and Mongolia are full members of the SEACFMD Campaign, this is not the case for other countries in East Asia. However, since the majority of East Asian countries participate as observers in the SEACFMD Campaign's most important meetings, the OIE conducts a meeting of East Asian contact persons for FMD in parallel to the main SEACFMD event.

Occasionally, other (sub-)regions have been invited to attend SEACFMD Sub-Commission meetings. For instance, in 2017 a representative from Argentina presented the South American experience in FMD eradication. In 2018, as a response to a risk assessment on FMD virus introduction from South Asia, Bangladesh, Bhutan and Nepal shared valuable information on the FMD situation in their countries and on



their activities. These South Asian countries also expressed a strong interest in being more regularly involved in and benefitting from SEACFMD activities. The new SEACFMD Roadmap will stress on the collaboration with South Asian countries, where multiple incursions of new FMD viral strains have originated.

The 2021–2025 Roadmap will explore how to better coordinate and strengthen partnerships with these countries and will promote experience sharing among different (sub-)regions.

#### **4.4 Strategic Objective 2: Comprehensive evaluation of the SEACFMD Campaign (1997–2020) to address critical gaps**

As described above in section 4.1, the **second objective** of the Roadmap 2021–2025 is to conduct an in-depth evaluation of the SEACFMD Campaign since its establishment in 1997 and up until 2020. This assessment will provide vital inputs to improve the implementation of the current Roadmap and will also provide guidance for its future direction.

It is foreseen that the activities under Objective 2 will be conducted during the first two years of Phase 6, in order to incorporate these findings into the implementation of the Roadmap 2021–2025 and adapt the focus of the Roadmap accordingly, particularly at the output level and in the Implementation Plan.

## 5. Implementation

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An implementation plan and monitoring and evaluation framework for the Roadmap 2021–2025 will be developed, drawing on feedback from SEACFMD member countries. These plans will be reviewed on a regular basis in order to monitor progress at national and regional levels against established performance indicators and objectives, identify areas where additional support may be required, or shift the focus of Phase 6 activities accordingly based on results.

### 5.1 Implementation mechanisms

#### 5.1.1 Institutional arrangement and governance

In order to enhance ownership of the SEACFMD Campaign at regional and national levels, the governance mechanism of the SEACFMD Sub-Commission was revised and endorsed at the Sub-Commission meeting held in September 2019. According to the revised terms of reference, the Sub-Commission will provide policy guidance and strategic direction to the SEACFMD Campaign, while the OIE SRR SEA will be responsible for supporting the prevention, control and eradication of foot and mouth disease in the region. The executive guidance of the Sub-Commission will be managed by the Steering Committee. Appendix D provides the Terms of Reference for the Sub-Commission and its Steering Committee.

At national level, each SEACFMD member country will designate a SEACFMD National Coordinator to provide technical support to the OIE Delegate. SEACFMD National Coordinators will be supported in their tasks by the OIE SRR SEA, as well as by the designated SEACFMD epidemiology and laboratory focal points. The primary task of National Coordinators will be to coordinate the implementation of agreed actions within their respective countries. A meeting of the National Coordinators will be held at least once a year (physically or virtually). During such meetings, they will discuss technical issues and draft recommendations for the endorsement of the Sub-Commission, and follow up on matters raised by the Sub-Commission and the Steering Committee. The SEACFMD EpiNet will provide technical inputs on disease surveillance, prevention and control to the National Coordinators, and the SEACFMD LabNet will provide technical inputs on disease diagnosis and other laboratory support on the prevention and control of FMD in the region.

The OIE SRR SEA acts as the SEACFMD Sub-Commission and Steering Committee’s Secretariat and remains the focal point for the SEACFMD Campaign’s coordination, monitoring, and evaluation of regional progress. The OIE SRR SEA will continue to support OIE Members, particularly in the coordination of disease control activities, and will serve as a reservoir of skills, knowledge and information for access by Members. The basic concept is for the SRR SEA to provide professional coordination of animal health activities among countries, while Members are responsible for their own national FMD control programmes.

#### 5.1.2 Funding and resourcing arrangement

To date, the implementation of the SEACFMD Campaign has been primarily funded by donors. The Australian government along with other donors supported the first four phases of the SEACFMD Campaign. Other donors currently supporting the SEACFMD Campaign are the New Zealand Aid Programme through the project “Strengthening FMD control in South-East Asia” (2015 to 2022) and the People’s Republic of China through its fund to strengthen FMD surveillance, control and safer cross-border trade. The United States Defense Threat Reduction Agency also funds SEACFMD Roadmap meetings through its project “Support to GF-TADs programme and control of priority transboundary animal diseases.”

In March 2003, to support funding sustainability, the Sub-Commission endorsed a recommendation for SEACFMD member countries to provide an additional 10% of their annual contributions to the OIE to support the operations of the SEACFMD Campaign.

At country level, multilateral and bilateral donors have directly supported SEACFMD member countries in recent years.

During Phase 6, while the OIE will continue to engage with donors to support the SEACFMD Campaign, SEACFMD member countries will be encouraged to seek additional resources from their respective governments and potential external donors, and to explore possible partnerships with private stakeholders. SEACFMD member countries are encouraged to map all of the existing resources for FMD-related activities and to explore the most cost-effective approach for implementing the SEACFMD Roadmap and national FMD control plan. A budget plan would also help the government to advocate for greater resource support from potential donors.

In support of the abovementioned efforts, an OIE advocacy paper stating the socio-economic benefits of preventing and controlling FMD will be updated and circulated to policymakers.

### 5.1.3 Communication

Clear, transparent and efficient communication is critical for the successful roll-out of SEACFMD activities. Communication has been an essential component in all of the previous SEACFMD Roadmaps. During the 6<sup>th</sup> phase of the Campaign, SEACFMD member countries are encouraged to include a communication plan, either in the national FMD control strategy or in the overall communication framework for livestock diseases. This communication plan should outline a platform for raising awareness amongst key stakeholders and propose opportunities for partnership with the private sector to obtain additional resources.

The OIE will maintain an active regional network of communication focal points and will continue to support its Members to enhance in-country communication capacities and to develop communication strategies and materials for greater engagement and promotion of PPP. The OIE will further explore and utilise different platforms to increase the visibility of SEACFMD activities, including coordination meetings, trainings, and success stories from Members in the implementation of the SEACFMD Roadmap.

## 5.2 Monitoring and evaluation

A monitoring and evaluation framework for the current Roadmap will be developed based on the theory of change drafted for this Roadmap (see section 4.2). The monitoring and evaluation framework will provide guidance to monitor the efficiency and effectiveness in the implementation of the two strategic objectives. Key indicators for the outcomes and outputs, as well as methodologies for routine collection of data to substantiate evidence of progress of the Campaign, will also be developed. The SEACFMD Roadmap monitoring and evaluation system will be improved progressively to provide clearer definitions of targets and indicators, more explicit descriptions of achievements, systematic data collection methods and to support the proper allocation of resources. Monitoring and evaluation approaches will also be developed specifically for the technical and scientific aspects of the SEACFMD Campaign.

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## 7. Appendices

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**Appendix A:** Country Progress Report along the SEACFMD Roadmap (2016-2020)

**Appendix B:** Feedback and Perceptions on the SEACFMD Campaign by the participants of 22<sup>nd</sup> SEACFMD National Coordinators Meeting

**Appendix C:** Logical framework for the SEACFMD Roadmap 2021–2025

**Appendix D:** Terms of Reference of the OIE Sub-Commission for foot and mouth disease in South-East Asia, China and Mongolia (SEACFMD)



### Country Progress Report along the SEACFMD Roadmap (2016-2020)

During the 19th SEACFMD National Coordinators Meeting in 2016, the SEACFMD Roadmap Implementation Plan was developed, based on national objectives and targeted activities identified by each country and to be conducted along the SEACFMD Roadmap (2016-2020).

The understanding of the progress made along the SEACFMD roadmap for each member country is pre-requisite step before preparing the next roadmap for 2021-2025. Therefore at the 26th Sub-Commission Meeting, held at Sendai in September 2019, agreed that each SEACFMD country will report on the progress made along this implementation plan.

The progress report under three broad component: Technical Measures, Coordination and Advocacy, and Policy and Governance has been prepared by the SEACFMD Member countries. The objectives and target activities was listed during the 26<sup>th</sup> Sub-commission meeting. Following that the MC compiled the lists of activities conducted since 2016 to reach each of these specific objectives and reported on the progress made during the fifth phase of SEACFMD campaign.

The key activities conducted by the SEACFMD member countries are presented in the subsequent sections.

## Brunei

Brunei Darussalam historically has no record of any clinical outbreak of FMD and thus obtained freedom of disease status for FMD on the 30<sup>th</sup> of May 2008 from OIE. Activities were conducted during the fifth phase SEACFMD campaign to maintain this freedom status as presented below.

<i>Objectives/targeted activities as identified in 2016</i>	<i>Activities conducted between 2016 to 2020 to reach these objectives</i>	<i>Report on the Progress, monitoring of impact; if not implemented, what is the reason</i>
<b>Technical Measures (2016 – 2020)</b>		
Continue passive surveillance and active surveillance activities throughout the country	Surveillance systems implemented include negative reporting and sero-surveillance. Reports on observation of clinical signs at border control posts and field cases are also collected as data. Sero-surveillance sampling carried out is as follows: 2016- 11 cases of 138 samples 2017- 9 cases of 314 samples 2018- 6 cases of 222 samples 2019- 13 cases of 621 samples	NA
Maintain surveillance of local populations	Serological sampling is carried out from the total ruminant population. Surveillance is conducted in all 4 districts on goats and sheep. Ideally sampling is to be taken on a monthly basis; however emphasis is done where in populations are reared for a long period of time i.e for breeding purposes.	NA
Review contingency plan and SOPs	National Foot and Mouth Disease Prevention and Preparedness Plan and SOP was reviewed in 2018	NA
Maintain FMD technical capacity of vets through trainings		Currently the department focuses on export orientated programs, therefore in-house training is planned to be conducted in 2020
Active surveillance monitoring program and proof testing for FMD	9 cases of 314 samples. All tested negative.	NA
Conduct forum/seminars/dialogues to engage all stakeholders in FMD contingency planning	Conducted every 3 months with farmers and public	NA

<i>Objectives/targeted activities as identified in 2016</i>	<i>Activities conducted between 2016 to 2020 to reach these objectives</i>	<i>Report on the Progress, monitoring of impact; if not implemented, what is the reason</i>
Continue training of vets and lab staff on developments in FMD research and other technical areas (disease management and risk assessment)	Laboratory to develop molecular testing for FMD - still in progress	For now, most training conducted are in-house only.
Have the national FMD preparedness plan endorsed at the Ministerial level	Endorsed in 2018	NA
Set up a real-time disease information system and link system to other sources	Still in progress of developing	NA
Endorsement of animal disease and quarantine order	Under review by Attorney General Chamber before endorsement	NA
<b>Coordination and Advocacy (2016 -2020)</b>		
Continue public advocacy to travelers about bringing animals into Brunei	Import requirement is coordinated by Biosecurity Division- Animals imported must be from free-FMD countries.	
Continue regular engagement and collaboration with border agencies	Continuous activities under Biosecurity Division who work closely with the Royal Customs and Excise Department to monitor and regulate the movement of animals and animals product in and out of the country	
Engage stakeholder in FMD awareness	FMD awareness continuously disseminated to farmers and public by Animal Health and Disease Control Unit	
include FMD and other important diseases into the national agenda and priority	FMD is included in the National Emergency Preparedness and Response Plan	
Meetings/dialogues at senior official levels	Continuous	

<i>Objectives/targeted activities as identified in 2016</i>	<i>Activities conducted between 2016 to 2020 to reach these objectives</i>	<i>Report on the Progress, monitoring of impact; if not implemented, what is the reason</i>
Inter-agencies involvement in FMD surveillance, facilitation of national control posts and quarantine stations		Table-Top Exercise was conducted with other agencies on Rabies and zoonotic diseases. For FMD it is still in planning phase.
Need to have the national FMD programme endorsed at the ministerial level <ul style="list-style-type: none"> <li>- dissemination of roles and responsibilities of related govt agencies and stakeholders,</li> <li>- dissemination of roles and responsibilities of related govt agencies during a FMD outbreak</li> </ul>	National Foot and Mouth Disease Prevention and Preparedness Plan and SOP endorsed in 2018. The National plans are following the OIE guidelines to ensure alignment with Global as well as SEACFMD strategy	
<b>Policy and Governance (2016 -2020)</b>		
Review FMD policies in line with OIE Code		FMD Policies is included in the Animal Disease and Quarantine Order which is still under review by AGC
Complete amendment of animals and birds act to strengthen animal disease prevention and control legislation	NA	
Activities includes: <ul style="list-style-type: none"> <li>- request for OIE PVS legislation mission</li> <li>- conduct an internal review of PVS findings</li> <li>- request for a new national budget based on these findings</li> </ul>		Planning to request for PVS legislation mission

## China

China had their Official Control Program for FMD endorsed by OIE and remained in PCP Stage 4. During the current phase of the campaign, China is trying to progress to PCP stage 5 in selected zones. Following activities were conducted to achieve this target during the fifth phase of the campaign.

<i>Objectives/targeted activities as identified in 2016</i>	<i>Activities conducted between 2016 to 2020 to reach these objectives</i>	<i>Report on the Progress, monitoring of impact; if not implemented what is the reason</i>
<b>Technical Measures (2016 – 2020)</b>		
Decrease prevalence through: <ul style="list-style-type: none"> <li>- vaccination</li> <li>- PVM</li> <li>- biosecurity measures</li> </ul>	<ul style="list-style-type: none"> <li>• From 2016, the ministry releases the "National Compulsory Vaccination Plan for Animal Diseases " every year.</li> <li>• From 2016,the ministry releases the "National Programme for Animal Disease Surveillance and Epidemiological Survey" every year.</li> <li>• From July 1, the vaccination towards Asia 1 FMD withdraw from the whole country, and the production and sales of vaccines containing Asia 1 FMD virus stopped according to the No. 2635 Announcement of the Ministry of Agriculture of the People's Republic of China</li> <li>• The bio-safety measures have been strengthened in all farms</li> </ul>	Since 2016, Chinese Government invested enormously to immunize all FMD susceptible animals and conduct thorough serological and pathogenic surveillance every year. <ul style="list-style-type: none"> <li>• According to the statistics from January to October in 2016, a total of 3,630,000 samples were tested by the National FMD Reference Laboratory and Animal Disease Control Centers at various levels for FMD surveillance. Out of them, 2,970,000 are serological samples, and 660,000 are pathological samples; From January to November in 2017, a total of 4,360,000 samples were tested by the National FMD Reference Laboratory and Animal Disease Control Centers at various levels for FMD surveillance. Out of them, 3,970,000 are serological samples, and 390,000 are pathological samples.</li> <li>• In 2018, all the FMD susceptible animals were vaccinated against FMD: dairy cow: 5,553,250; other kinds of cattle:133,767,900; sheep and goats: 610,247,100. Subsidies from the budget of the central government for FMD vaccination: dairy cow: 6,317,300; other kinds of cattle:236,386,100; sheep and goats: 579,743,300.</li> <li>• More than 70% of immunized animals gave the antibody levels above the protective level every year. So far the type Asia1 FMD is effectively put under control. It has not been endemic since 2010. Serotype A FMD outbreak has reduced with only 3 cases being reported from 2016. O/Ind-2001and O/PanAsia, two exotic strains, are re-introduced into China. Number of outbreaks caused by these two strains increases</li> </ul>
Animal movement control by: <ul style="list-style-type: none"> <li>• setting up control zones with bordering countries</li> <li>• enhanced certification/tracing systems.</li> </ul>	Animal movement management and promotion of cross-border animal safe trade	Studies on movement of cattle and buffalo from Upper Mekong Countries to China have been conducted by Yunnan Animal Science and Veterinary Institute (YASVI). Movement pathways have been mapped and value chains were identified. <ul style="list-style-type: none"> <li>• Based on the finding of animal movement and value chain study, three pilot TADs control zones have been established with bordering countries, Laos and Myanmar, in Mengla County of Jinghong City of Xishuangbanna Prefecture and</li> </ul>

Objectives/targeted activities as identified in 2016	Activities conducted between 2016 to 2020 to reach these objectives	Report on the Progress, monitoring of impact; if not implemented what is the reason
		<p>Ruili City of Dehong Prefecture of Yunnan Province to promote TADs control and cross border safe trade of livestock.</p> <ul style="list-style-type: none"> <li>• YASVI has hosted 4 Technical trainings on sampling (OP fluids and serum) and laboratory diagnosis (qRT-PCR and ELISA) for UM countries for FMD surveillance.</li> <li>• Collaboration with OIE SRRSEA, YASVI has provided technical training on OP fluids collection, qRT-PCR and ELISA for FMD diagnosis at the Myanmar National FMD Laboratory, Nay Pyi Taw on January 6- 19, 2019.</li> <li>• Host the 14th UMWG on FMD zoning and AMM meeting in Xishuangbanna Prefecture of Yunnan Province on April 23-25,2019</li> </ul>
Increase FMD free zoning approach in target areas in China	<ul style="list-style-type: none"> <li>• The status of the FMD free zone in Hainan province maintained</li> <li>• The FMD free zone in Shandong Peninsula was established in June of 2016</li> <li>• The FMD free zone in Jilin province was established in December of 2017</li> <li>• The Great North Eastern FMD free zone with vaccination is under development according to the Nong Yi Fa No. 41[2016].</li> </ul>	2 FMD free zones with vaccination have been established
Enhance FMD surveillance in target areas and outbreak response	The National FMD Reference Lab. conducts surveillance at high risk areas including southwest areas , Xinjiang autonomous region and other areas from 2016	2220 serum samples and 2220 tissue samples were received and tested by the national FMD reference lab. in China during 2016 - 2018 from these high-risk areas. The high risk areas have been intensively monitored
Early detection	The National FMD Reference Laboratory has developed rapid pen-side diagnostic methods including LFD for detection of FMDV antigen and antibodies; The rapid recombinase aided amplification (RAA) for detection of FMDV; and the portable qRT-PCR kits for rapid and pen-side detection of FMDV	New rapid and pen-side diagnostic technologies have been developed and used in the field
Increased technical capacity for FMD control by conducting two technical FMD meetings/year	<ul style="list-style-type: none"> <li>• Annual Training workshop on Vaccination Techniques for Major Animal Diseases</li> <li>• Annual training courses/meeting on animal disease surveillance programme and procedure;</li> <li>• Annual National Meeting/Training course on Animal Diseases Epidemiological Survey</li> </ul>	<ul style="list-style-type: none"> <li>• From 2016 to 2018, 9 such trainings at the national level were held;</li> <li>• Each animal disease control services at provincial level holds at least one such course every year;</li> <li>• 18 training courses on techniques for FMD diagnosis or comprehensive control and prevention were held by the national FMD reference lab.</li> </ul>



<b>Objectives/targeted activities as identified in 2016</b>	<b>Activities conducted between 2016 to 2020 to reach these objectives</b>	<b>Report on the Progress, monitoring of impact; if not implemented what is the reason</b>
	<ul style="list-style-type: none"> <li>Provincial CADC organizes training regularly every year;</li> <li>The national FMD reference laboratory organizes training courses regularly every year</li> </ul>	
Strengthening laboratory services	<p>The diagnostic assays routinely performed in the Chinese National FMD Reference Laboratory (CNFMDRL) were all accredited ISO/IEC 17025 in July 2017. The new version of 《the National Standard for the diagnosis of Foot and Mouth Disease》 was officially published and implemented since 1 April 2019; few strategic important vaccine strains have been developed for reservation and emergency preparedness</p>	<p>The CNFMDRL has examined the cross reactivity of the serum from the current vaccine strains against the strains posing threat to the country including O/Ind- 2001、 A/GVII and Asia1/Sind-08 with the help and collaboration from the WRL FMD; China has carried out the risk assessment and identified high risk virus and developed 4 vaccine strains for strategic reservation and technique preparation</p>
<b>Coordination and Advocacy (2016 -2020)</b>		
Increase Public awareness on FMD control	<ul style="list-style-type: none"> <li>Holding Trainings on FMD prevention and control techniques for local veterinaries;</li> <li>Visiting farms regularly to discuss with farmers, have on site investigation and give on site demonstration.</li> <li>Farmers constantly receive education and are informed with FMD knowledge through various publicity channels</li> </ul>	<ul style="list-style-type: none"> <li>The National Reference Laboratory has held 18 training courses on FMD diagnosis , prevention and control technologies with about 1,000 participants;</li> <li>Approximately 60 people from the CNFMDRL have gone to farms to conduct on site training every year</li> </ul>
Increased exchange of FMD information; Bilateral meetings with OIE/FAO	<ul style="list-style-type: none"> <li>Reporting and exchanging the information at the international conference by presentations, posters and publishing bulletins.</li> <li>Every year, MARA send experts from China to attend the following 4 annual meetings : OIE Reference Laboratory Network Meeting; OIE SEACFMD OIE Sub-Commission meeting; OIE SEACFMD National Coordinator Meeting ; Symposium on Prevention and Control of Foot and Mouth Disease and Highly Pathogenic Avian Influenza in East Asia;</li> <li>FMD experts from China also have attended the following conferences/meetings: OIE SEACFMD</li> </ul>	On-going activities

Objectives/targeted activities as identified in 2016	Activities conducted between 2016 to 2020 to reach these objectives	Report on the Progress, monitoring of impact; if not implemented what is the reason
	<p>LabNet meetings (2016, 2017 and 2019), OIE SEACFMD EpiNet meeting (2016, 2018, East Asia CP meeting (2018), FAO Regional Animal Health Laboratory Technical Advisory Group (Lab-TAG) Meeting (2017, 2018), Foot and-Mouth Disease Research Gap Analysis Workshop (2018), Regional Expert Group Meeting on Foot and Mouth Disease (May 2019; October 2019), Regional Meeting for OIE Reference Centers for Asia and the Pacific (2019);</p> <ul style="list-style-type: none"> <li>• International academic conference: GFRA meetings (2017, 2019), EUFMD open meetings (2016, 2018)</li> <li>• OIE Sub Regional Representatives Dr. Phillip Rodney Widders and Dr. Yu Qiu visited The Chinese National Reference Laboratory for FMD, LVRI, CAAS and had a bilateral meeting on 22nd March 2016</li> </ul>	
Perform Lab PT Testing with partner countries	<ul style="list-style-type: none"> <li>• Annual national PTS has been organized by the Ministry of Agriculture and Rural Affairs every year. In total about 960 blinded samples were prepared and provided by the CNFMDRL.</li> <li>• The CNFMDRL has participated in the 2014, 2016 and 2018 FMD PTS which were organized by WRL/EURL FMD, respectively. Panel 1 (2018), 2, 3 and 4 samples from each PTS were received and tested. The results obtained were comparable to other participating labs.</li> </ul>	Participation in national and global PTS with satisfactory results.
Partners to offer FEPTV training	<p>China Animal Health and Epidemiology Center(CAHEC) is responsible for organizing CFEPTV training in China. One CFEPTV Cohort training lasts two years. At the end of 2016, the 3<sup>rd</sup> CETPV Cohort was completed. At the end of 2018, the 4<sup>th</sup> CETPV Cohort was completed.</p> <p>The 5<sup>th</sup> CETPV Cohort starts at the beginning of 2019 and is carrying out smoothly.</p>	<p>China Animal Health and Epidemiology Center(CAHEC) organized the CFEPTV training in China. The training was carried out very smoothly and is highly recognized by FAO, and colleagues from the international community.</p> <p>So far, four cohort training had been completed, thus providing China a group of experts in the field of veterinary epidemiology.</p>

## Indonesia

Indonesia was declared free of FMD in 1996 by the OIE and freedom status is still maintained with dedicated effort by the veterinary services. Activities were planned and implemented by Indonesia during the fifth phase of the SEACFMD campaign as presented below.

<i>Objectives/targeted activities as identified in 2016</i>	<i>Activities conducted between 2016 to 2020 to reach these objectives</i>	<i>Report on the Progress, monitoring of impact; if not implemented what is the reason</i>
<b>Technical Measures (2016 – 2020)</b>		
Review FMD control strategy; VS to build capacity in risk analysis and establish a risk assessment team	<ul style="list-style-type: none"> <li>Established risk analysis team.</li> <li>Consultation meeting with the national expert committee of animal health</li> </ul>	Import risk analysis shall be conducted in response to an import of livestock and/or livestock product proposal from the new exporting country.
Update the Emergency preparedness plan	Reviewed and updated FMD preparedness plan (KIATVETINDO).	
Capacity building amongs VS in skills relevant to FMD	<p>Trainings for risk assessment are conducted annually using national budget</p> <p>Some training for risk assessment also supported by donor and international organization.</p> <p>Training conducted in 2017: Animal Health Risk Assessment Workshop for EIDs and TADs.</p>	
Review of surveillance strategy and ISIKHNAS for farmers reporting to expand and include negative reporting	<ul style="list-style-type: none"> <li>Training and refreher for iSIKHNAS coordinator and field officer.</li> <li>Development of new Laboratory Information System (IVLab)</li> </ul>	Training and refreher for iSIKHNAS coordinator and field officers is budgeted and conducted annually for 34 Provinces in indonesia
Conduct annual sero-surveys	<ul style="list-style-type: none"> <li>National sampling workshop for FMD, coordinated by Pusvetma as National Reference Lab for FMD</li> <li>Annual targeted sero-surveillance program are implemented using risk based approached to demonstrate freedom from infection.</li> </ul>	Report from annual surveillance including sero-surveys reported annually to the OIE for annual reconfirmation of Indonesia as FMD Free country without vaccination. In 2017, 3333 Blood serum of Cattle, Goat, Swine from 66 representative district tested to detect FMD antibody
Risk assessment to study the risk of FMDV reintroduction	<p>The risk assessment was conducted by Risk Assessment Team are:</p> <ul style="list-style-type: none"> <li>Qualitative Import Risk Analysis on the import plan of carabeef/buffalo meats from India to the Republic of Indonesia (2017).</li> <li>Semi Quantitative Import Risk Analysis on the import plan of beef meats from Brazil to the Republic of Indonesia (2018).</li> </ul>	Curently Indonesia import beef and carabeef meats from India and Brazil.
Farmer reporting system and active surveillance	<ul style="list-style-type: none"> <li>Training and refreher for iSIKHNAS coordinator and field officer users.</li> <li>Integration of Laboratory information system with ISIKHNAS</li> </ul>	Training and refreher for iSIKHNAS coordinator and field officer users is budgeted and conducted annually for 34 Provinces in indonesia

<b>Objectives/targeted activities as identified in 2016</b>	<b>Activities conducted between 2016 to 2020 to reach these objectives</b>	<b>Report on the Progress, monitoring of impact; if not implemented what is the reason</b>
Design IEC material	IEC material for FMD awareness designed for animal health websites and social media	Example: <a href="https://www.facebook.com/ditkeswan/posts/955448497912766">https://www.facebook.com/ditkeswan/posts/955448497912766</a>  <a href="https://www.facebook.com/ditkeswan/posts/956036957853920">https://www.facebook.com/ditkeswan/posts/956036957853920</a>
FMD lab capacity building such as PCR training	<ul style="list-style-type: none"> <li>To standardize FMD testing in Indonesia, Pusvetma coordinating all DIC's, providing SOP for Elisa and PCR testing.</li> <li>PCR training for Pusvetma was conducted in 2019</li> </ul>	All DIC's is able to conduct serological testing, all positive result shall be sent to Pusvetma for confirmation. PCR training for all DIC is budgeted in 2020
Review and publish indovet plan for FMD preparedness and perform annual simulation	<ul style="list-style-type: none"> <li>Reviewed and updated FMD preparedness plan (KIATVETINDO). Last version of KIATVETINDO is provided in Animal Health Website. However no simulation was performed due to budget refocusing</li> </ul>	No simulation was performed due to budget refocusing
Outbreak investigation training with field and laboratory linkages	<ul style="list-style-type: none"> <li>Outbreak investigation training for DIC, and local animal health services conducted annually supported by FAO, Indonesia.</li> <li>Outbreak Investigation also become one of the Module training of Indonesia Field Epidemiology Training Program for Veterinarian (FETPV/PELVI) since 2017</li> </ul>	<ul style="list-style-type: none"> <li>Budget allocated in 2020 for Outbreak investigation training</li> <li>FETPV/PELVI 2nd batch started in February 2020</li> <li>Harmonization of the two program planned in 2020</li> </ul>
Strengthening animal quarantines and borders	<ul style="list-style-type: none"> <li>New Act on Quarantine stipulated in 2019 to strengthen quarantine system.</li> <li>Animal Quarantine laboratory is equipped with PCR to enable FMD testing for suspected animal transported through quarantine station</li> </ul>	Training for FMD testing for quarantine laboratory planned in 2020 together with DIC's
Risk base surveillance	A risk assessment was incorporated as part of design of a risk based surveillance. Several risk factors for the introduction of FMD are considered such as: 1) Bordering/ close proximity with infected countries; 2) Illegal importation of beef and meat product; 3) High population and high density of cattle and pigs; 4) Pigs farming practicing swill feeding; 5) Distribution Province/area of imported meat from India.	Sampling plan designed in annual workshop coordinated by PUSVETMA
Preparedness and contingency plan	Budget for simulation is allocated for 2020	
<b>Coordination and Advocacy (2016 -2020)</b>		
Economic analysis and budget advocacy	Cost Benefit Analysis for FMD Freedom was conducted in 2017 supported by OIE	The result was provided for advocacy for decision maker

<i>Objectives/targeted activities as identified in 2016</i>	<i>Activities conducted between 2016 to 2020 to reach these objectives</i>	<i>Report on the Progress, monitoring of impact; if not implemented what is the reason</i>
<i>Policy Governance (2016 -2020)</i>		
Inter-ministerial funding mechanism for preparedness and emergency response established	In 2019, the Government stipulated Presidential instruction to strengthen responses to outbreak stated that beside technical ministries, Ministry of internal affair and local government shall provide fund for emergency response to disease outbreak.	Still need for lower regulation to implement

## LAO People's Democratic Republic

FMD remains endemic in Lao PDR and causes sporadic disease outbreaks in its susceptible livestock population, in particular cattle and buffaloes. From 2016 to 2019, LAO PDR developed FMD Risk Based Strategic Plan (RBSP) and have moved from PCP stage 1 to PCP stage 2. Other achievements during the current phase of the campaign are presented below.

<i>Objectives/targeted activities as identified in 2016</i>	<i>Activities conducted between 2016 to 2020 to reach these objectives</i>	<i>Report on the Progress, monitoring of impact; if not implemented, what is the reason</i>
<b>PCP stages</b>		
By 2016-2019 continue to sustain PCP 2 and aim for PCP 3 by 2020.		
<b>Technical Measures (2016 -2020)</b>		
To improve understanding of FMD cases over time through: -baseline survey, -negative reporting and -sero-surveillance	-The baseline and serological survey were conducted in Southern Laos in October 2016 and July 2017 in Northern Laos. -Active sero-survey conducted in Boten, Louangnamtha at Lao-China border. -Negative reporting has been continued and enhanced field staff including para-veterinarians has been trained in FMD control.	Improved understanding on FMD in some of the high- risk areas of Lao PDR. -In Southern Laos: 2012-16 cumulative clinical FMD incidence >50% HH. At the village-level, almost all the villages (N=96 out of 100) had one or more livestock owners observing signs of FMD in their herds  -In Xieng Khouang: 2012-16 cumulative incidence <10% HH.
FMD control measures applied, such as: -risk based vaccination and -increased outbreak reporting	-Risk based FMD vaccination programme has been implemented in Southern Laos and Xieng Khouang from May 2016 (Round 1) until June 2019 (Round 8). - outbreak reporting has improved from 2016 to 2019 due to increase awareness stakeholder, emphasis on strengthen surveillance.	-The highest number of animals vaccinated for FMD and HS in high risk areas were 119559 during R5 under NZ funded project. - 11,728 large ruminants vaccinated in Northern Laos during May / Dec 2017 under ACIAR /068 Project - In 2016, 12 outbreaks reported followed by 29 outbreaks in 2017. The reporting has increased thereafter, the year 2018, 56 clinical outbreaks were reported in Xayabuly, Attapeu and Champasak Provinces. 52 outbreaks were reported in Lauang Prabang, Northern Laos in 2019.
Activities will include further training on serotype diagnosis and RT-PCR training for FMD genotyping	-National and regional laboratory staff has attended various training programmes from the year 2016 - 2019 on serotype diagnosis and RT-PCR training for FMD genotyping at NAHL, RRL Bangkok and IAEA trainings under regional and international experts from RRL, (Thailand and China), MPI NZ lab experts and CSIRO-Australia.	The NAHL participates in proficiency testing (PT) organized by RRL, Pakchong for Non -Structural Protein (NSP) and antigen ELISA tests. The FMD division of NAHL is continue to streghten molecular diagnosis capacities and undergone on job training programmes on Realtime PCR and serology supported by regional and International experts as well as in collaboration with reference laboratories. These tests are now carried out by NAHL. In addition, ISO: 17025 Accreditation is under consideration with international accreditation committee.
Continue to build upon FMD surveillance and control	-FMD surveillance workshop was organised in 2015 and 2019.	- 3 new TAD surveillance laboratories constructed in Phonsaly, Louangnamtha and Vientiane Capital.



<b>Objectives/targeted activities as identified in 2016</b>	<b>Activities conducted between 2016 to 2020 to reach these objectives</b>	<b>Report on the Progress, monitoring of impact; if not implemented, what is the reason</b>
measures including more outbreak investigations	<ul style="list-style-type: none"> <li>- FMD recognition, disease reporting and sharing has been improved.</li> <li>- Number of outbreak investigation has been increased and</li> </ul>	<ul style="list-style-type: none"> <li>-FMD surveillance workshop has witnessed participation of National and sub national stakeholders from epidemiology, international check point, slaughter houses.</li> <li>- Disease monitoring and surveillance guidelines has been developed for Laos.</li> <li>- Surveillance focal point network of all 18 provinces has been established to exchange timely disease information.</li> <li>- Both active and retrospective outbreak investigation has been carried out in Central Laos (2016), Southern Laos (2017 and 2018), Northern Laos (2017 and 2018 and 2019).</li> </ul>
Continue to work on control measures	<ul style="list-style-type: none"> <li>-Besides FMD vaccination efforts were made to promote the application of Biosecurity guidelines.</li> <li>- Animal movement study has been conducted in both Southern and Northern Laos (2018 and 2019).</li> <li>-Applied outbreak response management and animal movement control to contain the outbreak.</li> <li>- Technical officers and village veterinary workers (VWV) are trained on FMD control module developed with OIE and it partners.</li> </ul>	<ul style="list-style-type: none"> <li>- Workshop on development of Biosecurity Guidelines has been organised in Southern Laos (2016).</li> <li>- Laos Biosecurity Guidelines has been developed, booklet has been printed and copies have been disseminated to technical staff in Southern and Northern Laos (2017,2018).</li> <li>- Biosecurity guidelines are also disseminated to the traders of Southern, Central and Southern Laos (2018).</li> <li>- Better understanding in country Animal movement workshop (2018), Survey (2019).</li> <li>- 82 district officers, 9779 farmers, 915 Village Veterinary Workers (VWV) are now trained in FMD control modules.</li> </ul>
Declare FMD control zones in Lao PDR	FMD continue to be endemic in Lao PDR but progress has been made to implement FMD prevention and control activities has been implemented and building surveillance. Laos to be able to declare FMD free zone has been postponed.	Given limited resource, capacities at sub national level and challenges around husbandry system, implementation of National FMD control strategy (2018-2025) and RBSP plan (2019-2022) has been developed and endorsed by MAF in Dec 2019. The work will continue until 2022 in Southern and Northern Laos to develop free zone.
Develop centralized information system	Capacity building and application of Integrated Realtime Information System (IRIS).	11 National and provincial has been trained for the application Integrated Realtime Information System (IRIS). The livestock census, epidemiology and laboratory data have been stored and managed on IRIS.
<b>Coordination and Advocacy (2016 -2020)</b>		
Seek Public Private Partnership as well as secure funding support	DLF has engaged with private companies for slaughter house operations and management for large ruminants. In addition, animal breeding, production and market access has been improved	<ul style="list-style-type: none"> <li>-Collaboration with private companies to manage slaughter house in Central Laos.</li> <li>- Engagement with CP and BETAGRO in animal breeding, production.</li> </ul>

<i>Objectives/targeted activities as identified in 2016</i>	<i>Activities conducted between 2016 to 2020 to reach these objectives</i>	<i>Report on the Progress, monitoring of impact; if not implemented, what is the reason</i>
	particularly poultry and pig production. Coordination with traders to facilitate legal animal movement and trade.	
Collaborative Bilateral/ trilateral /Multilateral meetings with neighbouring countries	Some of the key meetings attended -The 14th Joint meeting of Lao-Thai livestock committee and 7th bilateral meeting of Lao-Thai animal quarantine committee on 12-13 July 2017, Louangnamtha, Lao PDR. -The 14th bilateral meeting of Vietnam S.R and Lao PDR on TAD control on September 12 – 13, 2017 at Hanoi, Vietnam. -The 3rd meeting on collaboration to address TAD in the Upper Mekong sub-region on 31 October-1 November 2017, Naypyidaw, Myanmar. - Multilateral meeting Lao- China- Myanmar and Vietnam (Nov 2018).	- Lao PDR represented Bilateral/ trilateral /Multilateral meetings with neighboring countries on TAD including FMD control, discuss cross border animal movement and improve safer trade.
Mass public awareness for animal disease control and prevention	Communication material on FMD prevention and control has been developed, printed and disseminated in Lao PDR.	-Posters, Billboards and booklets on FMD prevention and control has been distributed to stakeholders in Southern and Northern Laos. - FMD control training modules for district officers, vvw's has been disseminated. - 9779 farmers have been trained in Southern and Northern Laos on FMD control focus on improve understanding on FMD and enhance public participation in FMD control measures.
Increase public and private funding support for FMD control	To secure funding support on FMD control by private companies is work in progress particularly with vaccination and safer trade.	-Business model to attend sustainability for FMD vaccination have been introduced in Southern Laos and Xieng Khouang where provincial funding mechanisms have been explored. (2019) - RBSP FMD control plan has been developed to advocate funds from the government and partners (2019)
Engagement for the safe trade	- Coordination with Laos traders and attended joint National and regional meeting (UMWG). country. -Continue discussion with neighboring countries to facilitate safer trade.	- 14th Meeting of the Upper Mekong Working Group on Foot and Mouth Disease Zoning and Animal Movement Management Xishuangbanna, China ,23-25 April 2019. This meeting was attended with Laos traders and DLF staff. (Please also refer to bilateral and multilateral meting for additional meetings).
<b>Policy and Governance (2016 to 2020)</b>		
Legislation on animal movement and control	Prime Minitrial decree on control of movement of animals and products.	Laos-China agreement of import, export and transit of animals and animal products. (April 2019)

<i>Objectives/targeted activities as identified in 2016</i>	<i>Activities conducted between 2016 to 2020 to reach these objectives</i>	<i>Report on the Progress, monitoring of impact; if not implemented, what is the reason</i>
Strengthen legislation to allow for FMD eradication	<ul style="list-style-type: none"> <li>-Law on Livestock and Veterinary Matters (revised)</li> <li>-Government decree on animal feed refer 02/GOV, 02/01/2020</li> <li>-Improving on the draft Prime minister decree on veterinary drug and slaughter house management dated on 9-13 September 2017</li> <li>-Improve on the draft of prime minister decree on slaughter house and meat inspection management and on veterinary drug management (on 5-9 February 2018)</li> </ul>	<p>Law on Livestock and Veterinary matters (revised) refer 008/NP, 11/11/2016.</p> <p>This decree is to define the principles, regulation and measures for the management, monitoring of animal feed to quality, standardization and safety</p> <p>In the progress</p> <p>In the progress</p>
Animal health law and budget for the FMD programme	Law on Livestock RBSP FMD Control Plan 2019-2022	RBSP FMD Control Plan endorsed by MAF.

## Mongolia

Mongolia had their Official Control Program for FMD endorsed by OIE and remained in PCP Stage 4. During the current phase of the campaign, Mongolia is trying to progress to PCP stage 5 in selected zones. Following activities were conducted to achieve this target during the fifth phase of the campaign.

<i>Objectives/targeted activities as identified in 2016</i>	<i>Activities conducted between 2016 to 2020 to reach these objectives</i>	<i>Report on the Progress, monitoring of impact; if not implemented what is the reason</i>
<b>PCP stages</b>		
Progressive increase to PCP 4/5 in select zones by 2020	Preventive measures (zoning, movement control, risk-based vaccination)	CVO of Mongolia has declared by his N 84 <sup>th</sup> decree, territory of western 7 provinces as FMD free zone without vaccination in 2019. Mongolia now is planning to submit dossier for FMD free zone within 2020. Western part of the country is considered as PCP 4/5 so far.
<b>Technical measures (2016 – 2020)</b>		
Continue perform NSP testing in surveillance area	Active surveillance has been conducted annually.	<p>The nationwide serosurveillance program in 2019, collected total of 16,875 serum samples from 1125 households in 154 herders coop in 75 soums of 21 provinces and the 154 districts of capital city. The active surveillance was performed from May 7 to October 18, 2019.</p> <p>In the 7 provinces of the Western Mongolia as a result of a serosurveillance analysis of serum, a total of 4725 samples were analyzed, and 6 samples (0.12%) showed positive result, and 4719 samples (99.87%) did not detect antibodies to the FMD virus non-structural protein (natural infection).</p> <p>In the 10 provinces of central region of Mongolia, total of 8100 samples were analyzed, and 23 samples (0.28%) showed positive result, and in 8077 samples, 99.71% did not detect any antibodies to the non-structural protein of FMD virus (natural infection).</p> <p>In the 5 provinces of Eastern Mongolia, a total of 4050 samples were analysed, 251 samples (6.19%) showed positive result to the non-structural protein of FMD virus. Serosurveillance results show that samples from Dornod and Sukhbaatar provinces detected the largest number of samples from 5 provinces in the eastern region of Mongolia, which are directly related to the outbreak of FMD in 2018-2019.</p>

<b>Objectives/targeted activities as identified in 2016</b>	<b>Activities conducted between 2016 to 2020 to reach these objectives</b>	<b>Report on the Progress, monitoring of impact; if not implemented what is the reason</b>
Expand vaccination coverage (eastern Zone 2016-2020)	Vaccination policy is ongoing based on risk.	FMD vaccination carried out in the eastern part of the country. Total 22.7 million susceptible animals (camel, cattle, pig, sheep and goats) were vaccinated against FMDV in 2019.
Update National FMD control plan	FMD control program updated	Mongolia has updated official FMD control program and sent it to OIE for the endorsement
Identify circulating strain of FMD	FMD strain is identified at national level and confirmed by OIE reference laboratory.	There is no report of any FMD outbreak in Mongolia in 2019. Last FMD outbreak was caused by O/ME-SA/Ind-2001 and O/ME-SA/Mya-98 in 2018 and those were confirmed by Pirbright.
Develop information system and sharing information	Integrated veterinary information system and WAHIS	Mongolia actively participate regional activities in order to strengthening control capacity to FMD as well as information sharing.
Continue to strengthen the laboratory network in order to support FMD control	Laboratory networking in the national and international level.	Mongolia has e-laboratory network system in the country. We always send samples to OIE reference laboratory for confirmation in case of FMDV diagnosed at national laboratory.
Aim to have national control plan endorsed	Zoning policy	Official FMD control plan was adapted by OIE in 2016. Mongolia's next aim is to get disease free recognition for FMD free zone without vaccination from OIE.
Central Region PCP 3 to 4: <ul style="list-style-type: none"> <li>- Develop check points,</li> <li>- Surveillance,</li> <li>- Training and public awareness</li> </ul>		
Eastern Region PCP 2: <ul style="list-style-type: none"> <li>- Target vaccination,</li> <li>- PVM,</li> <li>- Surveillance,</li> <li>- Emergency outbreak investigation,</li> <li>- Training and information sharing</li> </ul>		
Aim to achieve the FMD free status with vaccination.		
<b>Coordination and Advocacy (2016 to 2020)</b>		
Endorsed national control plan		
Training on animal movement control		

## Myanmar

FMD is endemic in Myanmar and has been recorded in all states and regions of the country. From 2016 to 2019, Myanmar developed FMD Risk Based Strategic Plan (RBSP) and have moved from PCP stage 1 to PCP stage 2. Other achievements during the current phase of the campaign are presented below.

<i>Objectives/targeted activities as identified in 2016</i>	<i>Activities conducted between 2016 to 2020 to reach these objectives</i>	<i>Report on the Progress, monitoring of impact; if not implemented what is the reason</i>
<b>PCP Stages</b>		
In 2016 continue to maintain PCP stage 1 and gradually progress to PCP 2 in 2017	In-country workshop on developing a national strategic framework for FMD control in Myanmar on 15-19 January, Nay Pyi Taw. Regional Workshop in 2017 and 2018. Finalized on June 2019 and submitted and approved to Ministerial Committee meeting in August 2019.	Workshop on RBSP introduction to stakeholder(LBVD head quarter, Livestock federation, traders association, farmer associations, etc) in June 2020 for more understanding to be control and prevention of FMD situation, important for socioeconomic condition. RBSP workshop stakeholders for Project area on July 2020.
<b>Technical Measures (2016 – 2020)</b>		
Store FMD lab results, report outbreaks	In 2016, tested 12 reported outbreaks and understood of virus type 'O'circulation Mya 98 and India 2001d. In 2017, tested 60 reported outbreaks and understood of virus type 'O' circulation of Mya 98 and India 2001d and type 'Asia 1' circulation of G VIII. In 2018, tested 47 reported outbreaks and understood of virus type 'O' circulation India 2001d. In 2019, tested 25 reported outbreaks and understood of virus type 'O' and type 'A' circulation.	Extend more disease outbreak reporting system by phone, social media (viber)and documentation system. Extensive surveillance system in all Regions and States by priority.
Vaccination and PVM in central part of Myanmar	1 <sup>st</sup> round vaccination in May 2017, 2 <sup>nd</sup> round in June 2017(Booster), 3 <sup>rd</sup> round in November 2017, 4 <sup>th</sup> round in May 2018, 5 <sup>th</sup> round in Dec 2018, 6 <sup>th</sup> round in June 2019, 7 <sup>th</sup> round in November 2019. PVM conducted in 2017, 2018 and 2019.	8 <sup>th</sup> round in May 2020 and 9 <sup>th</sup> round in November 2020. PVM will conduct on September 2020.
Include sero-surveillance and outbreak investigation in Central Myanmar	Sero-surveillance in June 2019, September 2019 and December 2019 at Nay Pyi Taw and Magway and Bago. One outbreak Investigation was conducted in 2017, 5 outbreak investigation in 2018, 6 outbreak investigation in 2019.	Sero-surveillance will conduct in Sagaing, Rakhine, Kayah, Yangon, Mandalay, Mon, Kayin, Thanintharyi,Shan.
Activities will include training staff on sample submission and early reporting	TOT for FMD Prevention and Control Training, CAHW Training for FMD Prevention and Control, Outbreak Investigation Training.	LBVD Project Cascade training training program, Traders / Farmers Training by NTT, Training programs for emergency outbreak areas from February to August 2020.

<b>Objectives/targeted activities as identified in 2016</b>	<b>Activities conducted between 2016 to 2020 to reach these objectives</b>	<b>Report on the Progress, monitoring of impact; if not implemented what is the reason</b>
ensure serotype specification vaccines against all circulating strains of FMD	Myanmar produce type 'O' vaccine. OIE- LBVD-FMD Control project received Trivalent (O, A, Asia 1)	Estimate 1.2 million doses of type 'O' will produce in 2021
Measure incidence of FMD	RBSP plan, Vaccination and Awareness program, Outbreak Investigation.	RBSP plan, Vaccination and Awareness program, Outbreak Investigation
reduce the FMD outbreak by 100%	Reduced FMD outbreak by 100% in project area.	By promoting reporting system and control FMD in time by vaccination.
By end of 2019, limit the spread of FMD by controlling animal movements and identification system	Invited Express of Interest for Animal Identification system and introduced to some farms.	Will continue improving of electronic animal identification system in trading animals.
Establishing FMD control measures in large zones	Vaccinated project area	will conduct sero-surveillance and priority vaccination program by Government.
Training of Veterinarians in outbreak investigation	Outbreak Investigation Training to District officers , Township officers and Deputy Township officers of 14 Regions and States and Nay Pyi Taw Territory.	Outbreak Investigation follow up Township officers and Deputy Township officers.
Conduct simulation exercises	Vaccination, Ear Tagging	Vaccination and Ear Tagging
<b>Advocacy and coordination (2016 – 2020)</b>		
Public awareness for all stakeholders including farmers and private sector to support FMD control	In 2017, Disease Surveillance Training, FMD information Seminar, FMD survey Training, Farmer Awareness Training, Vaccination, Biosecurity and Ear Tagging Training and Laboratory Training. In 2018, TOT for FMD Prevention and Control Training, CAHW Training for FMD Prevention and Control, Outbreak Investigation Training. In 2019, Training on Basic data analysis by excel.	LBVD Project Cascade training program - Traders / Farmers Training by NTT, Training programs for emergency outbreak areas from February to August 2020.
Continue to have meetings to facilitate regional cooperation	Training at Massey University EpiCenter 2017' 1st Regional Geographic Information System Training in Thailand October 9-12th , 2017 Training at Massey University EpiCenter 2018 2nd Regional Geographic Information System Training in Thailand October 16-19th, 2018 Training at Massey University EpiCenter 2019	FMD National Coordinator meeting. Sub commission meeting
Develop a strategy to eliminate FMD from a zone in the Myanmar and have it nationally endorsed	Vaccination campaign in Central Myanmar, Developed standard Farm with GAHP system, Animal movement of trading animal must be vaccinated.	Regional workshop/ Technical meeting for development concept on FMD free zone/ compartment.
<b>Policy and Governance (2016 – 2020)</b>		



<b><i>Objectives/targeted activities as identified in 2016</i></b>	<b><i>Activities conducted between 2016 to 2020 to reach these objectives</i></b>	<b><i>Report on the Progress, monitoring of impact; if not implemented what is the reason</i></b>
Workshops/meetings to review PCP stage and to support progression of PCP	In-country workshop on developing a national strategic framework for FMD control in Myanmar on 15-19 January, Nay Pyi Taw. Regional Workshop in 2017 and 2018. Finalized on June 2019 and submitted and approved to Ministerial Committee meeting in August 2019.	Workshop on RBSP introduction to stakeholder(LBVD head quarter, Livestock federation, traders association, farmer associations, etc) in June 2020 for more understanding to be control and prevention of FMD situation, important for socioeconomic condition. RBSP workshop stakeholders for Project area on July 2020.

## Philippines

The Philippines applied for OIE Recognition in September 2014 as FMD-free country without practicing vaccination and was bestowed a certificate of freedom recognition during the 83<sup>rd</sup> General Assembly of OIE Delegates on May 28, 2015 in Paris, France. In order to maintain this freedom status, the following activities were implemented during the fifth phase of SEACFMD campaign.

<i>Objectives/ targeted activities identified in 2016</i>	<i>Activities conducted between 2016-2020 to reach these objectives</i>	<i>Report on the progress Monitoring of Impact/ If not implemented what is the reason</i>
<b>Technical (2016 -2020)</b>		
Continue to maintain FMD-free zones	<ul style="list-style-type: none"> <li>Conduct of biannual collection of serum samples from the 81 provinces nationwide</li> </ul>	<p><b>2016</b></p> <p>A. 14 tested positive for presence of antibodies for FMD. The reactors were of different species from separate establishments namely abattoir, stock farm, and backyard farm located in separate regions in the country. Trace-back investigation, sample collection from same animal or same herd, and negative monitoring were conducted. The diagnostic test yielded negative results.</p> <p>B. NMRs from only 50% of the 42,0126 barangays were forwarded to BAI. Reasons cited for non-submission included no internet connection, no trained staff, lack of personnel.</p>
Conduct investigation of any suspect FMD cases	<ul style="list-style-type: none"> <li>Conduct of clinical surveillance by the Livestock technicians in all barangays where animals are inspected regularly for any sign of FMD. Absence of clinical signs are submitted monthly as Negative Monitoring Reports (NMRs) by the local government veterinarians to the Bureau of Animal Industry (BAI) Philippine Animal Health Information System (Phil-AHIS) database.</li> </ul>	<p><b>2017:</b></p> <p>A. There were 5 positive results – 2 from carabaos and 3 from pigs. They were collected from slaughterhouses and backyard farms. Upon follow-up sample collection from animals in the concerned barangays, the test yielded negative results. Clinical surveillance was also conducted and there was no observed sign of FMD among the animals.</p> <p>B. NMRs from a mere 6.5% of the total number of barangays were submitted to PhilAHIS. Some regions/LGUs claimed that they could not open or gain access to the system. They were advised to coordinate with PhilAHIS staff to know the details for its inaccessibility.</p> <p><b>2018:</b></p> <p>A. One sample tested positive. It was part of the 28 serum samples submitted by the Ilocos Norte Provincial Veterinary Office (PVO) on November 28, 2018 and the results were reported by the laboratory on 7 December 2018. The positive sample was from one of the 3 goats owned by Mr. Mariano</p>

Objectives/ targeted activities identified in 2016	Activities conducted between 2016-2020 to reach these objectives	Report on the progress Monitoring of Impact/ If not implemented what is the reason
		<p>Eulalio. The PVO was immediately informed of the positive result and was advised to collect samples again from the owner and from neighboring animals.</p> <p>Samples were collected from 6 out of the 7 goats of Mr. Mariano and from 25 goats of 8 neighboring backyard raisers. Samples were sent to the National FMD Laboratory on 9 January 2019. Unfortunately, the lone reactor during the 1st collection owned by Mr. Mariano tested positive again. The rest of the animals were negative. Disease investigation was likewise conducted on all the farms in Barangay Juan. There had been no signs indicative of FMD for several years already.</p> <p>A third sample collection was conducted. 132 serum samples were received on 6 February 2019. This time, all the samples tested negative.</p> <p>B. This year, NMRs from only 1% of the barangays nationwide were submitted to PhilAHIS. Though PhilAHIS has already simplified the negative monitoring forms for ease of accomplishment, the respondents still perceived the process of filling up the NMR form as tedious since it covers 6 diseases in all.</p> <p><b>2019:</b>  A. All serological test results were negative.  B. NMRs from 855 barangays only had been forwarded to PhilAHIS.</p>
Prevent smuggling of animal products that might harbor FMD	<ul style="list-style-type: none"> <li>• Strengthening of quarantine inspection through augmentation of personnel manning international ports and seaports.</li> <li>• Close coordination with customs officials</li> <li>• Display of informative roll-up banners</li> </ul>	From 2016 to 2019, there had been a number of confiscations of smuggled meat and meat products at international ports and seaports throughout the country.
Organize a TWG meeting to review the FMD EPP manual		This activity was scheduled to be conducted in 2017. There had already been initial coordination with the members of the Philippine College of Swine Practitioners who will be part of the TWG during the first quarter of 2017. However, the review and revision had been sidelined by the incursion of HPAI H5N6 into the country. Said disease problem had been completely resolved by the first semester of 2018. But the review of the FMD-EPP manual still did not push

<b>Objectives/ targeted activities identified in 2016</b>	<b>Activities conducted between 2016-2020 to reach these objectives</b>	<b>Report on the progress Monitoring of Impact/ If not implemented what is the reason</b>
		through because revision of the country's AI Preparedness Plan had been prioritized, which I also happened to head. By 2019, I had been transferred to the Livestock Research and Development Division. Without staff nor budget to conduct TWG meetings, revision of the manual was temporarily shelved.
Increased submission of negative reporting by conducting training on electronic submission	2016: PhilAHIS conducted "SYSTEM ORIENTATION, INSTALLATION AND HANDS-ON TRAINING ON FIELD SURVEILLANCE AND VACCINATION SYSTEM" of regional PhilAHIS coordinators to enhance and update technical skills in the online Surveillance and Vaccination Usage System (SVUS) which allows the automated storage and retrieval of animal health data from the field. A total of Four workshops in Cagayan de Oro, Batangas, Aklan and Region 1 were facilitated by PhilAHIS this year. 2017-2019: PhilAHIS deployment to capable cities and municipalities nationwide; PhilAHIS staff invited by different provinces to conduct trainings	Though PhilAHIS has been deployed to all capable cities and municipalities and despite numerous trainings and retooling seminars, there was no improvement in the submission of reports. To address this perennial problem, we developed a mobile application for NMR submission. It had its pilot launching last December in Soccksargen. It will be formally launched nationwide during the FMD National Coordinators' Meeting which is scheduled during the first quarter if this year.
Ensure that the biannual serosurveillance sample submission by provincial vets reaches 80% of required number of samples	Communicated the requirement for sample submission during the annual FMD Coordinators' Meetings	Sample submission compliance: 2016: 83.3% 2017: 98.6% 2018: 100.5% 2019: 93.6%
Revision of EPP manual: - Draft a national emergency response plan - National animal health plan - Inclusion of all stakeholders in	Creation of TWG	Final schedule of review and revision set on 2020
Maintain emergency response plan		Current EPP will still be followed in the event of an incursion.
Maintain FMD freedom and establish enhanced quarantine structures	Conduct of FMD Risk Assessment Study in Region XII (Soccksargen) in preparation to shifting to a more robust risk-based surveillance by 2020	Based on the evaluation of accomplished survey questionnaires, only the lone city of General Santos is classified to have medium level of risk. All the four provinces have low level of risk.

<b>Objectives/ targeted activities identified in 2016</b>	<b>Activities conducted between 2016-2020 to reach these objectives</b>	<b>Report on the progress Monitoring of Impact/ If not implemented what is the reason</b>
	Renovation/construction of BAI-Regional Veterinary Quarantine Stations	
Strengthen trade enabling risk management	<p>A risk assessment is conducted prior to the issuance of Veterinary Quarantine Clearance to Import.</p> <p>For importation of beef and buffalo meat from countries with different FMD status as the Philippines, they must be deboned and deglanded for shipment to be allowed.</p> <p>Reports of occurrence of trans-boundary animal diseases in the exporting country are monitored and prompt a review of the trade with the affected country by BAI. Issuance of a trade ban and resumption of trade is done immediately by DA upon the recommendation of BAI.</p>	Animal and animal products were imported in accordance with the OIE Code
<b>Communication and Advocacy (2016 -2020)</b>		
Conduct annual FMD Coordinators' Meeting	<p>National FMD Coordinators' Meeting was held on the following dates:</p> <p>December 2016</p> <p>November 2017</p> <p>November 2018</p>	The annual National FMD Coordinators' Meeting is a gathering of the regional and provincial FMD coordinators to present, among others, their accomplishments on FMD prevention for the current year. This also provides a venue to discuss about the constraints and challenges faced in carrying out the program and to recommend solutions to address the problems. Moreover, it gives me the opportunity to reiterate implementation of the National FMD Prevention and Preparedness Program to sustain the country's FMD freedom.
Capacity building trainings	<p>In 2016, a series of FMD Risk and Crisis Communication Workshop was conducted to complement the FMD Tabletop Simulation Exercises in 2015.</p> <p>In 2017, a series of Basic Incident Command System training was conducted to establish an effective and</p>	Participants were veterinarians from the local government, DA-Regional Field Office regulatory division, Regional Animal Disease Diagnostic Laboratories, and Veterinary Quarantine Services. They are the field implementers of the FMD Program so they have to be equipped with the necessary skills for an effective and sustained execution of the activities of the program.

<b>Objectives/ targeted activities identified in 2016</b>	<b>Activities conducted between 2016-2020 to reach these objectives</b>	<b>Report on the progress Monitoring of Impact/ If not implemented what is the reason</b>
	<p>efficient response management system towards various disasters and incidents such as an FMD outbreak.</p> <p>In 2018, an Integrated Planning Course on Incident Command System (ICS) was conducted as a sequel to the basic ICS training course. The main objective of the training was to enhance the participants' knowledge in handling animal disease outbreaks and emergencies with a common standard approach for multiple agencies/institutions.</p> <p>In 2019, 25-40 livestock inspectors/ technicians/animal health workers (front liners) have been trained per region by the Agricultural Training Institute (ATI) using the module developed by BAI. The training module includes disease recognition, sample collection, basic disease investigation and disease reporting.</p> <p>A retooling seminar on FMD was organized to the technical staff of the LGU Veterinary Offices in Soccksargen (Region XII).</p>	
New IEC materials	<p>As part of our awareness campaigns, we have T-shirts and standees carrying a message on keeping the Philippines FMD-free.</p> <p>We have distributed tarpaulin streamers to DA regional field offices and to the LG veterinary offices which contain basic information about FMD such as the cause, clinical signs, and means of transmission.</p> <p>We have also distributed FMD Information cards to all the LGU veterinary office staff in Soccksargen. The card contains the protocol in case of an FMD. It also bears the names and contact numbers of the national, regional, and provincial FMD coordinators.</p>	
<i>Policy and Governance (2016 – 2020)</i>		
<b>Policy and Governance (2016 -2020)</b>		

<b>Objectives/ targeted activities identified in 2016</b>	<b>Activities conducted between 2016-2020 to reach these objectives</b>	<b>Report on the progress Monitoring of Impact/ If not implemented what is the reason</b>
Increase in budget allocation	<p>Starting in 2015, there has been no dedicated budget for FMD. It has been incorporated with OTHER ECONOMICALLY IMPORTANT DISEASES component.</p> <p>A five-year BAI strategic plan (2016-2020) was crafted in 2015 with the FMD Preparedness Program as one of its major components.</p> <p>The program's annual deliverables and budgetary requirements were laid down. Unfortunately, the strat plan did not prosper.</p>	<p>Total expenses on the training of coordinators' FMD IEC materials, meetings, test kits:</p> <p>TOTAL: 2016 – PhP 7,000,000.00  2017 – PhP 2,200,000.00  2018 – PhP 1,100,000.00  2019 – PhP 2,040,000.00  2020 – PhP 1,000,000.00</p>
Quarantine legislation/s	<p>DA Memorandum Circular No. 12 s. 2017 "Importation Procedures for Live Animals into the Philippines"</p> <p>DA Memorandum Circular No. 3 s. 2017 "Export Procedures for Live Animals"</p> <p>DA Administrative Order No. 5 s. 2019 "Guidelines on the Local Transport/ Shipment of Animals, Animal Products and By-Products"</p> <p>BAI Memorandum Order No.9 s.2019 "Veterinary Quarantine Guideline for the Import of Meat Intended for Personal or Non-Commercial Use"</p> <p>Last 30 August 2019, The DA issued a MO which prohibits the use of catering food waste from international and domestic airports and seaports as swine swill feed throughout the country. This is in line particularly with the prevention of entry into the country of FMD and ASF. The VQOs assigned at various stations are directed to oversee and monitor that the airports and seaports follow the proper disinfection and disposal of catering food wastes and left overs.</p> <p>Currently, the National Veterinary Quarantine Services Division (NVQSD) of BAI is working on a proposal for BAI FMD emergency response and indemnification fund since the current strategies of the BAI are mainly focused on border protection, surveillance and capacity building activities. The proposal will be submitted to the Department of Budget and Management.</p>	All the said policies are in place.



<b>Objectives/ targeted activities identified in 2016</b>	<b>Activities conducted between 2016-2020 to reach these objectives</b>	<b>Report on the progress Monitoring of Impact/ If not implemented what is the reason</b>
Risk Management Plan	<p>Department Order No. 1, series of 2015 entitled “Implementation of the Trade Enabling Risk Management System in SPS Operations” had been issued. It was supported by a Special Order on the creation of the project teams composed of representatives from the Bureau of Plant Industry (BPI), BAI, Bureau of Fisheries and Aquatic Resources (BFAR), and National Meat Inspection Service (NMIS).</p> <p>Conduct of Capacity building on Risk Analysis (including Risk Assessment) by BAI in collaboration with the Philippine College of Veterinary Epidemiologists (PCVE)</p>	<p>In 2016, the Special order had been revised to strengthen the composition and further elaborate the responsibilities of the four (4) Implementation Teams. Under the overall chairmanship of Dr. Imelda Santos from BAI, there had been several meetings to discuss the standards/measures/processes established by each team in relative to the implementation of its respective responsibilities.</p> <p>However, there had been a change of leadership last year. It is not clear if there will also be a change in the composition of the project implementation teams, though there had been no follow-up meetings ever since.</p>
Formulate a national policy to strengthen biosecurity and harmonize SPS and quarantine regulation	<p>Drafted the National Biosecurity Guidelines of the Philippines. It prescribes the biosecurity standards for border control, large scale and small scale livestock farms, transport vehicles, slaughterhouse, auction market and LBM.</p> <p>NVQSD crafted DA Memorandum Circular No. 12 s. 2017 "Importation Procedures for Live Animals into the Philippines" which strengthens the country's importation and veterinary certification procedures amidst enhanced world trade liberalization</p>	

## Singapore

Singapore is recognised by the OIE as an “FMD free country where vaccination is not practised”. The last case of FMD in Singapore was detected in 1935. No outbreak of FMD has occurred in domestic and wild animals since then. The following activities were carried out by the Singapore Veterinary Services to maintain its FMD free status.

<i>Objectives/targeted activities as identified in 2016</i>	<i>Activities conducted between 2016 to 2020 to reach these objectives</i>	<i>Report on the Progress, monitoring of impact; if not implemented what is the reason</i>
<i>Technical Measures (2016 -2020)</i>		
Maintain surveillance	<p>Singapore has an ongoing surveillance programme in place for effective early detection of suspect cases of FMD.</p> <p>The surveillance for FMD is via recognition of characteristic clinical signs in a species likely to exhibit clear clinical signs. The main target population for the surveillance is the animals at the 4 ruminant farms in Singapore. All the ruminant farms are regularly inspected by the Singapore Food Agency (SFA) officers for disease surveillance purposes on a monthly basis. Any suspect cases will be investigated with samples collected and sent for confirmatory testing at the Centre of Animal and Veterinary Sciences (CAVS) under NParks, which provides FMD diagnostic test capabilities using OIE recognised methods. CAVS participates in yearly proficiency testing programmes organised by regional reference laboratory in PakChong, Thailand and by international reference laboratory in Pirbright UK. All the proficiency testing results are satisfactory.</p> <p>Regular targeted surveillance for FMD in ruminant farms and wild boars is also conducted, which showed no evidence of FMD infection to date.</p>	<p>Our FMD prevention programme aims to prevent the introduction of FMD into Singapore.</p> <p>Singapore remains as an OIE-recognised FMD free country where vaccination is not practised.</p> <p>There has been no outbreak and evidence of FMD in Singapore since 1935.</p>
Work on potential FMD hotspots	N.A.	
Maintain awareness and vigilance	Refer to section below.	Refer to section below.
Import control	<p>NParks and SFA regulate the import of animals and animal products for non-food and food-producing animals respectively. NParks and SFA will only issue an import permit if the animals or animal products meet import requirements, and have the required health and disease freedom certifications.</p> <p>NParks and SFA do not allow the import and transshipment of meat and animals from sources that are not FMD free or if they do</p>	Singapore continues to implement the relevant trade measures for prevention of FMD introduction into Singapore.

<i>Objectives/targeted activities as identified in 2016</i>	<i>Activities conducted between 2016 to 2020 to reach these objectives</i>	<i>Report on the Progress, monitoring of impact; if not implemented what is the reason</i>
	<p>not meet the risk mitigation measures, such as heat treatment. Animal products must be certified to not contain any infectious or contagious agent, including FMD virus.</p> <p>Live animal imports are inspected at the border checkpoints. Animals imported for slaughter undergo ante-mortem and post-mortem checks at the abattoir.</p> <p>Singapore works closely with our trading partners through the counterpart veterinary authority and conducts regular inspections and audits on source farms supplying live pigs to Singapore to minimize the risk of FMD incursion through import of live pigs.</p> <p>Bilateral meetings with the relevant competent authorities were conducted in 2016 to 2019 to discuss issues relating to animal health and facilitate trade.</p>	
Contingency planning	<p>NParks has a structured emergency response system in place to deal with animal disease incidents such as FMD outbreaks. This emergency system will employ strategies encompassing the following: placing an immediate isolation order on the suspected premises; initiation of an immediate standstill of movement of vehicles, livestock/ungulates, in-contact material, personnel and dairy and meat products in related farms and premises; field and laboratory investigation and assessment of the situation with confirmation or refutation of the outbreak. The system also involves a command structure that involves relevant government agencies and industry stakeholders. If FMD is confirmed, stamping out will be carried out. This involves culling of all infected and in-contact susceptible species; disposal of carcasses and related in-contact material by incineration; and thorough cleaning and decontaminating of the premises and all related equipment and vehicles.</p>	<p>NParks is currently reviewing the emergency response systems to take an all-hazards approach and plans to hold simulation exercises for any significant animal diseases, such as FMD. NParks will continue to actively engage relevant stakeholders to review existing emergency protocols.</p>
<b>Coordination and advocacy (2016 - 2020)</b>		
Maintain awareness and vigilance	<p>FMD is gazetted as a notifiable disease under the Animals and Birds Act, which requires any person in custody of animals who suspects FMD to report the case to the National Parks Board (NParks).</p>	<p>Singapore will continue to participate actively in the various platforms for discussion on FMD and other TADs to enhance capabilities in surveillance, risk assessment and disease control.</p>

<i>Objectives/targeted activities as identified in 2016</i>	<i>Activities conducted between 2016 to 2020 to reach these objectives</i>	<i>Report on the Progress, monitoring of impact; if not implemented what is the reason</i>
	<p>Through regular meetings and dialogue sessions, NParks and SFA actively engages relevant stakeholders such as local farms and the zoo to create awareness and stress the importance and impact of FMD. In 2018, a set of guidelines on reporting notifiable diseases in Singapore was published, to help facilitate prompt reporting of notifiable diseases by practicing veterinarians and animal owners. NParks continues to work closely with the competent authorities for human and environmental health and food safety through the One Health Framework.</p> <p>As a member of the OIE and ASEAN, Singapore also works closely with other member countries towards eradicating FMD in the region. Singapore participated in the SEACFMD Sub-Commission meeting, National Coordinators Meetings and other meetings (e.g. LabNet Meeting, Regional Training) held from 2016 to 2019.</p>	

## Thailand

The FMD outbreaks mainly occur in cattle, and mostly in the central part of Thailand. These outbreaks relate with the north-west and the north of Thailand according to the route of animal movement and trade. The FMD Official Control Program was endorsed by OIE and currently Thailand is at Stage 4 of the FMD PCP. During the Phase 5 of the SEACFMD campaign Thailand is working towards progressing to PCP Stage 5 in selected zones. Activities to achieve this goal are presented below.

<i>Objectives/targeted activities as identified in 2016</i>	<i>Activities conducted between 2016 to 2020 to reach these objectives</i>	<i>Report on the Progress, monitoring of impact; if not implemented what is the reason</i>
<b>PCP Stages</b>		
Progressive increase to PCP 4/5 in selected zones by 2020 (i.e. Zonal approach)	There is a specific law called DLD regulation on animal and animal carcasses movement into or transit FMD free zone in the eastern part of Thailand B.E.2558 (2015). This law is completely enforced in order to establish an FMD free zone in a selected zone.	This law is issued in the context of Thailand under the Animal Epidemics Law. There will be a study on comparing the current law with the OIE code in order to improve the law to be compliant with the OIE code completely and minimize negative impact of stakeholders.
<b>Technical Measures (2016 - 2020)</b>		
continue to improve animal health information system	E-Smart Surveillance system had been used continuously for outbreak notification, investigation, follow-up and control.	Provincial veterinary authorities recognized that this is an official system and used it for outbreak report. Central authority compiled data conveniently and quickly; however, quality of the data reported is needed to monitor continuously.
Develop rapid screening test for the in the field FMD diagnosis	RRL Pakchong has a research project to produce monoclonal antibody test and plan to develop as pen-side test for investigating FMD.	The research is on-going and seeking funding for the next research phase (to develop as pen-side test).
Improve reporting of FMD cases nationally	Active clinical surveillance program	Proceeding continuously. This results help reduction of under report cases.
develop animal health information system by implementing an internet-based reporting system including rapid alert and control (phone application)	E-Smart PLUS system allows for livestock population and assesses disease risk using smart phone.	Able to follow more dynamic data of animal health information.
Test all imported animals for FMD	FMD laboratory capacity building for Animal Quarantine Stations at borders was conducted.	Imported animal can be tested more quickly but the budget for this activity did not enough to test all.
Outbreak investigation training for hot spot areas	Training program for epidemiology including outbreak investigation.	There have been outbreak investigation team at regional level and the team needs more advance topics to study.
make all live animal trade official (e.g. eliminate unofficial transactions)	In progress.	Law enforcement is continuously proceeding.
Response effectively and contain all new FMD outbreaks by validating new field tests in the field	Pen-side test for investigating FMD is now an alternative and voluntary diagnosis.	Mainly, FMD field diagnosis is clinical surveillance and sample submission to confirm at RRL is convenience.

<b>Objectives/targeted activities as identified in 2016</b>	<b>Activities conducted between 2016 to 2020 to reach these objectives</b>	<b>Report on the Progress, monitoring of impact; if not implemented what is the reason</b>
Conduct epidemiological study such as transmission modelling, spatial modelling, cohort study, socio-economical study, social network analysis	There were many studies on FMD by trainees and their outbreak investigation team.	Executives support the team to apply the study to solve problems in the region.
Wide-scale implementation of new pen-side tests in the field for molecular serotyping	In process of research as mention in “Develop rapid screening test for the in the field FMD diagnosis”	Mainly, FMD field diagnosis is clinical surveillance and sample submission to confirm at RRL is convenience and able to know sero-typing, molecular, and vaccine matching results.
Strengthening the laboratory network capacities and capabilities	PT program by RRL Pakchong	Proceeding continuously
Improve vaccination programme at risk areas	Support vaccinators	Need more participation from farmers
Improve biosecurity	Basic biosecurity on farm is defined as a law	In order to expand the effect. This needs more incentive for farmers in strategic plan.
<b>Advocacy and Coordination</b>		
coordinate with other organizations and countries to control illegal animal movements	Bilateral meetings	Proceeding in some years

## Appendix B

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### Feedback and Perceptions on the SEACFMD Campaign by the participants of 22<sup>nd</sup> SEACFMD National Coordinators Meeting

SEACFMD National Coordinators and key partners from research institutes, private sector, partner organisations shared their perceptions on the SEACFMD Campaign during an interactive session at the 22<sup>nd</sup> SEACFMD National Coordinators meeting held in Ulaanbaatar, Mongolia on 22-25 June 2019. They assessed the key achievements, strengths and weaknesses of the SEACFMD Campaign as well as future opportunities for improvement. The main feedbacks are summarized below:

#### Key achievements

- Successful maintenance of regional coordination and cooperation
- Better understanding of the FMD epidemiology
- Successful maintenance of FMD free countries and zones
- Better knowledge on the livestock movement patterns
- Continued external funding to support campaign activities
- Practical guidance to improve the performance of veterinary service on disease control
- Providing an effective model on the control of other TADs at a regional level
- Enhance capacity of SEACFMD countries in prevention and control of FMD

#### Main strengths

- Strong organisational structure
- Providing a platform on information sharing
- Opportunities for collaborations between countries, and between country and international organisations
- Direct technical support from well-known experts
- Opportunities to improve knowledge on the OIE standards which in turn improve compliance
- Guidance on developing national FMD control strategy
- Close engagement with ASEAN and other international organisations

#### Main weaknesses

- Resource sustainability in Member Countries and too much reliance on external funding
- Significant variation in Member Countries' capacities to implement SEACFMD recommendations
- Strategic objectives set too high to achieve, ignoring the field implementing capacity
- Insufficient emphasis on biosecurity
- Lack of clear strategy with many repetition work throughout the campaign

#### Opportunities for improvement

- Set pragmatic targets and implementation timelines
- Strengthen political advocacy and ASEAN commitment on FMD control
- Synergies with other major TADs such as ASF and CSF
- Sustainable FMD control strategy, with reduced reliance on external funding sources
- Improve veterinary service infrastructure and capacity building
- Enhanced public-private partnership

#### Threats to overcome

- Fatigue in Member Countries when goals are not achieved
- Funding sustainability



- Reduced resources dedicated to FMD due to competition from other TADs
- Perceptions in key stakeholders are not well understood
- Increasing complexity of regional FMD situation due to cross-border livestock movements and exotic virus incursions

**Appendix C**

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*To be developed*

### Terms of Reference of the OIE Sub-Commission for foot and mouth disease in South-East Asia, China and Mongolia

Endorsed by the SEACFMD Sub-Commission on 4 September 2019

#### 1 The OIE Sub-Commission for foot and mouth disease in South-East Asia, China and Mongolia (SEACFMD)

##### 1.1 The role of the OIE Sub-Commission for foot and mouth disease in South-East Asia and China

- Provide strategic direction to the SEACFMD Campaign and the OIE Sub Regional Representation, Bangkok, in support of prevention, control and eradication of foot and mouth disease in the region
- Encourage programme ownership by member countries, and foster a spirit of cooperation and commitment by member countries
- Coordinate activities and provide advice and assistance whenever possible

##### 1.2 Duties and responsibilities of the Sub-Commission

- Define the Policy of the SEACFMD Campaign
- Provide strategic guidance on the coordination, management and future direction of the SEACFMD Campaign
- Endorse the SEACFMD annual work plan
- Provide advice to the OIE, ASEAN and major donors on SEACFMD monitoring, audit and evaluation activities
- Take into account in their deliberations the recommendations from the Steering Committee and the National Coordinator meetings
- Elect the Members of the Steering Committee
- Encourage SEACFMD countries to comply with their notification obligation for all transboundary animal diseases and to report their animal disease situation into OIE-WAHIS
- Encourage and support FMD outbreak investigation, virus characterisation
- Encourage the use of the OIE *Terrestrial Animal Health Code* to manage FMD risks
- Collate regional surveillance data

##### 1.3 Secretariat, frequency and location of meetings

- The Sub-Commission shall meet at least every two years, or as may be decided, preferably in the margin or back-to-back to regular meetings where OIE Delegates are already convened (e.g. OIE General Session, OIE Regional Conference for Asia and the Pacific)
- The Secretariat shall be provided by the OIE Sub-Regional Representation for South-East Asia
- The Secretary shall be responsible for preparing agendas, invitations, recommendations and the Reports of Annual Meetings, as well as the management and coordination of business between Meetings. Reports should be distributed to the SEACFMD Sub-Commission, the OIE Regional Commission, ASEAN and major donors, as required
- An Extraordinary Meeting of the Sub-Commission can be convened with the agreement by the President of the Sub-Commission and Director General of the OIE

#### 1.4 Membership of the Sub-Commission

##### Members with voting rights: 12

- OIE Delegates from the member countries in South-East Asia, China and Mongolia or their duly nominated representatives in accordance with the OIE rules

##### Members without voting rights:

- OIE Director General or his/her representative

##### Secretariat:

- OIE Sub-Regional Representative for South-East Asia

##### Observers:

- OIE Regional Representative for Asia and the Pacific
- OIE Reference Laboratory(ies)
- A Representative from ASEAN Secretariat
- A Representative from FAO
- Representative/s from donor organisations contributing \$150,000 US per annum or equivalent
- Any person whose presence the President deems useful shall also be eligible to participate in the work of the Sub-Commission.

#### 1.5 Election of the Sub-Commission President, and Vice-Presidents and the two additional members of the Sub-Commission in the Steering Committee

- The President and two Vice-Presidents shall be elected, by the OIE Delegates, among the OIE Delegates of Member Countries for a period of two years.
- The President and two Vice-Presidents will be part of the Steering Committee.
- Two additional OIE Delegates of Member Countries will be elected as members of the Steering Committee for a period of two years.
- The five members of the Sub-Commission to be part of the Steering Committee shall ensure a geographical distribution of representation. Their mandate may be renewed if re-elected.

The Sub-Commission may vary these arrangements depending on circumstances. The Sub-Commission will endorse arrangements at the start of each Sub-Commission Meeting.

## **2 Steering Committee to the Sub-Commission**

### 2.1 Role of the Steering Committee

- Act as the Executive to the Sub-Commission between its meetings, and implement decisions on policies already endorsed by the Sub-Commission;
- Provide policy, strategic and governance advice to the Sub-Commission and to the Secretariat;
- Promote the SEACFMD Campaign;
- Identify regional priorities.

### 2.2 Duties and responsibilities of the Steering Committee

- Oversee the implementation of SEACFMD annual work plan, endorsed by the Sub-Commission;
- Analyse and advise the Sub-Commission on SEACFMD Campaign developments, key issues for consideration and recommended actions;
- Provide advice on working arrangements with related FMD management programmes and consistency with the recommendations of OIE/FAO Global FMD Conferences;
- Participate in Steering Committee activities during annual Sub-Commission Meetings and contribute as required to Steering Committee business out of session.

## 2.3 Secretariat and modus operandi

- The Secretariat shall be provided by the OIE Sub-Regional Representative who is also Member of the Steering Committee.
- The Secretariat shall provide agendas for meetings, and prepare concise records of meetings with recommendations as appropriate for the consideration of the Sub-Commission.
- The Steering Committee will meet regularly depending on needs, possibly twice a year, once physically and once electronically.
- Between annual Meetings, business shall be conducted by correspondence, telephone or under exceptional circumstances face-to-face if agreed by the President of the Sub-Commission.
- The Steering Committee will have a quorum of 50% plus 1 of its Members.
- Decision-making on the implementation of the SEACFMD annual work plan shall be by consensus<sup>1</sup> and be reported to the Sub-Commission. Should there be disagreement on a particular issue(s), the Steering Committee shall advise the Sub-Commission of the nature of any problem for Sub-Commission decision.
- Subject to obtaining the prior agreement of the Chair, the Secretary may invite observers or advisors to meetings. Such observers and advisors shall have no voting rights
- The costs of the Steering Committee will be met from provisions in the budget of the SEACFMD.

## 2.4 Membership of the Steering Committee

- The President of the Sub-Commission (Chair)
- The two Vice Presidents of the Sub-Commission
- The two elected Delegate Members
- A Representative of the OIE Director General
- Representative(s) from donor organisations contributing \$150,000 US per annum or equivalent
- The OIE SEA Sub-Regional Representative (as Secretary)
- The OIE Regional Representative for Asia and the Pacific
- A Representative of FAO
- A Representative of the ASEAN Secretariat

# 3 SEACFMD National Coordinators, Epidemiology and Laboratory Network

## 3.1 SEACFMD National Coordinators

### 3.1.1 Role, duties and responsibilities of the National Coordinators

- Each member country of the SEACFMD Sub-commission shall designate a SEACFMD National Coordinator to provide technical support to the OIE Delegates. SEACFMD National Coordinators shall be supported in their tasks by the OIE Sub-Regional Representation; as well as by designated SEACFMD epidemiology and laboratory focal persons.
- National Coordinators will provide reports and make every effort to coordinate the implementation of agreed actions within their countries
- The National Coordinators should take into account in their deliberations the views of the wide range of observers from countries and organisations who participate in the meetings

### 3.1.2 Modus operandi

- A meeting of the National Coordinators shall be held at least once a year. They shall discuss technical issues and draft recommendations for the endorsement of the Sub-Commission; and follow-up on matters put to them by the Sub-Commission and the Steering Committee.

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<sup>1</sup> "Consensus" means the making of decisions by general agreement (which may involve a measure of compromise necessary to ensure a workable outcome), and that no members actively participating in the decision-making process opposes the decision.

- Technical partners should be invited to the National Coordinator meetings.
- Participants in the National Coordinator meeting should include:
  - Participants from each Member Country, including the National Coordinator
  - Leaders of Epi and Lab network
  - Relevant OIE Reference Centres
  - Relevant research institutes
  - International partners
  - Private stakeholders
  - Possibly a representative from neighbouring countries
- The meeting should cover any technical matters:
  - Report on FMD situation from all countries, control activities undertaken in infected countries and maintenance of freedom in FMD free countries or zones
  - Assessment of countries PCP stages in endemic countries
  - Share of success stories and scientific researches undertaken
  - Regional analysis
  - Gaps in research, policy, implementation...
  - Technical trainings
- Every other year, a 2-day scientific session would be organised back-to-back to the National Coordinator meeting

### 3.2 SEACFMD Epidemiology Network (EpiNet) and Laboratory Network (LabNet)

The SEACFMD EpiNet shall provide technical inputs on disease surveillance, prevention and control to the National Coordinators, and the SEACFMD LabNet shall provide technical inputs on disease diagnosis and other laboratory support on the prevention and control FMD in the region. Each member country shall designate EpiNet and LabNet focal persons to support the SEACFMD National Coordinators.

The SEACFMD EpiNet and LabNet shall hold a meeting once a year.

### 3.3 Other technical and advisory groups

In addition to these SEACFMD permanent entities, other technical and advisory groups may be gathered, such as a Public-Private Partnership Committee or an FMD Technical Expert Advisory Group.