# Executive Summary

1

# Recommendations

2

## 1. Introduction

6

## 2. Opening Ceremony

6

## 3. Progress of the SEAFMD Campaign

7

   i) The SEAFMD Campaign Progress Report 2009/2010
   ii) Qualitative Assessment on the Achievements of the SEAFMD Campaign
   iii) Economic Evaluation of the SEAFMD Campaign

## 4. Update on FMD Status

10

   i) Update on the World Situation in relation to FMD
   ii) Status of FMD in 2009 and Retrospective Analysis of FMD Outbreaks in South East Asia

## 5. Member Country FMD Status Reports

11

Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam

## 6. Reports from other members of the Sub-Commission

14

Australia, New Zealand, OIE Regional Office for Asia and Pacific, FAO

## 7. Reports from Collaborators and International Organisations

15

AusAID, ACIAR, CSIRO, EU, ILRI, PR China, MAFF-Japan, Chinese Taipei, Singapore, ADB

## 8. Disease Surveillance, Diagnosis, Reporting and Control (SEAFMD Component 4)

19

   i) Country reports
   ii) Development of SEAFMD Toolkit
   iii) Progress Report of the OIE Reference Laboratory for FMD in Pakchong and Progress of the SEAFMD Laboratory Network
   iv) Progress with the SEAFMD EpiNet and Development of a training module for Outbreak Investigation
   v) Vaccination strategy in South-East Asia

## 9. Regional Research and Technology Transfer (SEAFMD Component 6)

22

   i) Country Reports
   ii) ACIAR Project on Understanding Animal Movement
   iii) Epidemiological and risk-based studies of FMD in the MTM Zone
   iv) Progress on the study of FMDV persistent infection in Buffaloes
   v) FMD research activities of AAHL-Geelong
   vi) Current research work on FMD in Japan
   vii) Progress on FMD vaccine development
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10.</td>
<td>Public Awareness and Communication (SEAFMD Component 3)</td>
</tr>
<tr>
<td></td>
<td>i) Country Reports</td>
</tr>
<tr>
<td></td>
<td>ii) SEAFMD Communication Program</td>
</tr>
<tr>
<td></td>
<td>iii) Animal Health Communication Strategy for South East Asia</td>
</tr>
<tr>
<td>11.</td>
<td>Policy, Legislation and Standards to Support Disease Control and Zone Establishment (SEAFMD Component 5)</td>
</tr>
<tr>
<td></td>
<td>i) Country Reports</td>
</tr>
<tr>
<td></td>
<td>ii) Update on Standards (OIE Code and Manual) in relation to FMD</td>
</tr>
<tr>
<td></td>
<td>iii) SEAFMD Progressive Zoning (MTM, Upper and Lower Mekong)</td>
</tr>
<tr>
<td>12.</td>
<td>Programme Management, Resources and Funding (SEAFMD Component 2)</td>
</tr>
<tr>
<td></td>
<td>i) Review on the Economic Impact Studies done on FMD in South-East Asian countries</td>
</tr>
<tr>
<td></td>
<td>ii) Costs of FMD Eradication in the Philippines</td>
</tr>
<tr>
<td></td>
<td>iii) Review of SEAFMD 2020 Roadmap</td>
</tr>
<tr>
<td>13.</td>
<td>International Coordination and Support (SEAFMD Component 1)</td>
</tr>
<tr>
<td></td>
<td>i) Country Reports</td>
</tr>
<tr>
<td></td>
<td>ii) Progress with GF-TADs in Asia and the Pacific</td>
</tr>
<tr>
<td></td>
<td>iii) ASEAN Report</td>
</tr>
<tr>
<td>14.</td>
<td>Monitoring and Evaluation (SEAFMD Component 8)</td>
</tr>
<tr>
<td></td>
<td>i) SEAFMD Work Plan 2010/2011</td>
</tr>
<tr>
<td>15.</td>
<td>Concurrent Meetings of SEAFMD Delegates and Observers</td>
</tr>
<tr>
<td></td>
<td>i) SEAFMD Delegates’s Meeting</td>
</tr>
<tr>
<td></td>
<td>ii) Observers Meeting</td>
</tr>
<tr>
<td></td>
<td>iii) Plenary Session to Report Outcomes of Delegates and Observers Meeting</td>
</tr>
<tr>
<td>16.</td>
<td>Field Trip Report</td>
</tr>
<tr>
<td>17.</td>
<td>Meeting of OIE Delegates of South East Asia (Open Session)/OIE Capacity Building and Linkages with Partner Organisations</td>
</tr>
<tr>
<td></td>
<td>i) OIE Initiatives</td>
</tr>
<tr>
<td></td>
<td>ii) FAO Initiatives</td>
</tr>
<tr>
<td></td>
<td>iii) ASEAN Initiatives</td>
</tr>
<tr>
<td></td>
<td>iv) Progress with the OIE/AusAID PSVS</td>
</tr>
<tr>
<td></td>
<td>v) HPED</td>
</tr>
<tr>
<td>18.</td>
<td>Meeting of OIE Delegates of South-East Asia (Close Session)</td>
</tr>
<tr>
<td>19.</td>
<td>General business</td>
</tr>
<tr>
<td></td>
<td>i) Finalising Recommendations</td>
</tr>
<tr>
<td></td>
<td>ii) Date and venue for the next Sub-Commission Meeting</td>
</tr>
<tr>
<td>20.</td>
<td>Closing Ceremony</td>
</tr>
<tr>
<td>21.</td>
<td>Acknowledgments</td>
</tr>
</tbody>
</table>
### Table of Appendices

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix I</td>
<td>Programme</td>
<td>32</td>
</tr>
<tr>
<td>Appendix II</td>
<td>List of Participants</td>
<td>37</td>
</tr>
<tr>
<td>Appendix III</td>
<td>Agenda Paper: The SEAFMD Campaign Progress Report</td>
<td>44</td>
</tr>
<tr>
<td>Appendix IV</td>
<td>Agenda Paper: Qualitative assessment on the achievements of SEAFMD Campaign</td>
<td>51</td>
</tr>
<tr>
<td>Appendix V</td>
<td>Agenda Paper: Status of FMD in 2009 and retrospective analysis of FMD Outbreaks in South-East Asia</td>
<td>56</td>
</tr>
<tr>
<td>Appendix VI</td>
<td>Country Report: Cambodia</td>
<td>60</td>
</tr>
<tr>
<td>Appendix VII</td>
<td>Country Report: Indonesia</td>
<td>71</td>
</tr>
<tr>
<td>Appendix VIII</td>
<td>Country Report: Laos</td>
<td>72</td>
</tr>
<tr>
<td>Appendix IX</td>
<td>Country Report: Malaysia</td>
<td>75</td>
</tr>
<tr>
<td>Appendix X</td>
<td>Country Report: Myanmar</td>
<td>78</td>
</tr>
<tr>
<td>Appendix XI</td>
<td>Country Report: Philippines</td>
<td>80</td>
</tr>
<tr>
<td>Appendix XII</td>
<td>Country Report: Thailand</td>
<td>85</td>
</tr>
<tr>
<td>Appendix XIII</td>
<td>Country Report: Vietnam</td>
<td>89</td>
</tr>
<tr>
<td>Appendix XIV</td>
<td>Agenda Paper: Development of SEAFMD Toolkit</td>
<td>93</td>
</tr>
<tr>
<td>Appendix XV</td>
<td>Agenda Paper: Draft SEAFMD Vaccination Strategy</td>
<td>102</td>
</tr>
<tr>
<td>Appendix XVI</td>
<td>Agenda Paper: Review of the SEAFMD 2020 Roadmap</td>
<td>104</td>
</tr>
<tr>
<td>Appendix XVII</td>
<td>SEAFMD Delegates Meeting Agenda</td>
<td>105</td>
</tr>
<tr>
<td>Appendix XVIII</td>
<td>Observers Meeting Agenda</td>
<td>106</td>
</tr>
<tr>
<td>Appendix XIX</td>
<td>Observers Meeting Recommendations</td>
<td>107</td>
</tr>
<tr>
<td>Appendix XX</td>
<td>Agenda Paper: National Coordinators Progress Report</td>
<td>110</td>
</tr>
<tr>
<td>Appendix XXI</td>
<td>Agenda Paper: Upper Mekong Working Group Progress Report</td>
<td>112</td>
</tr>
<tr>
<td>Appendix XXII</td>
<td>Agenda Paper: Lower Mekong Working Group Progress Report</td>
<td>114</td>
</tr>
<tr>
<td>Appendix XXIII</td>
<td>Agenda Paper: 10th Meeting of the MTM Tri-State Commission</td>
<td>116</td>
</tr>
<tr>
<td>Appendix XXIV</td>
<td>Agenda Paper: Progress of the SEAFMD Laboratory Network (LabNet)</td>
<td>119</td>
</tr>
<tr>
<td>Appendix XXV</td>
<td>Agenda Paper: Progress of the SEAFMD Epidemiology Network (EpiNet)</td>
<td>122</td>
</tr>
</tbody>
</table>
## Table of Appendices on CD

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix 01</td>
<td>Programme</td>
</tr>
<tr>
<td>Appendix 02</td>
<td>List of Participants</td>
</tr>
<tr>
<td>Appendix 03</td>
<td>The SEAFMD Campaign Progress Report 2009/2010</td>
</tr>
<tr>
<td>Appendix 04</td>
<td>Qualitative Assessment on the Achievements of SEAFMD Campaign</td>
</tr>
<tr>
<td>Appendix 05</td>
<td>Economic Evaluation of the SEAFMD Campaign</td>
</tr>
<tr>
<td>Appendix 06</td>
<td>Update on the World Situation in relation to FMD</td>
</tr>
<tr>
<td>Appendix 07</td>
<td>Status of FMD in 2009 and Retrospective Analysis of FMD Outbreaks in South East Asia</td>
</tr>
<tr>
<td>Appendix 08</td>
<td>Cambodia Country Report</td>
</tr>
<tr>
<td>Appendix 09</td>
<td>Indonesia Country Report</td>
</tr>
<tr>
<td>Appendix 10</td>
<td>Laos Country Report</td>
</tr>
<tr>
<td>Appendix 11</td>
<td>Malaysia Country Report</td>
</tr>
<tr>
<td>Appendix 12</td>
<td>Myanmar Country Report</td>
</tr>
<tr>
<td>Appendix 13</td>
<td>Philippines Country Report</td>
</tr>
<tr>
<td>Appendix 14</td>
<td>Thailand Country Report</td>
</tr>
<tr>
<td>Appendix 15</td>
<td>Vietnam Country Report</td>
</tr>
<tr>
<td>Appendix 16</td>
<td>Australia Report</td>
</tr>
<tr>
<td>Appendix 17</td>
<td>New Zealand Report</td>
</tr>
<tr>
<td>Appendix 18</td>
<td>OIE Regional Office for Asia and Pacific Report</td>
</tr>
<tr>
<td>Appendix 19</td>
<td>FAO Report</td>
</tr>
<tr>
<td>Appendix 20</td>
<td>CSIRO Report</td>
</tr>
<tr>
<td>Appendix 21</td>
<td>EC Report</td>
</tr>
<tr>
<td>Appendix 22</td>
<td>PR China Report</td>
</tr>
<tr>
<td>Appendix 23</td>
<td>Japan Report</td>
</tr>
<tr>
<td>Appendix 24</td>
<td>AusAID Report</td>
</tr>
<tr>
<td>Appendix 25</td>
<td>ACIAR Report</td>
</tr>
<tr>
<td>Appendix 26</td>
<td>ILRI Report</td>
</tr>
<tr>
<td>Appendix 27</td>
<td>Development of SEAFMD Toolkit</td>
</tr>
<tr>
<td>Appendix 28</td>
<td>Report of the OIE Reference Laboratory for FMD in Pakchong and Progress of the SEAFMD Laboratory Network</td>
</tr>
<tr>
<td>Appendix 29</td>
<td>Progress with the SEAFMD Epidemiology Network and Development of a Training Module for Outbreak Investigation</td>
</tr>
<tr>
<td>Appendix 30</td>
<td>Vaccination Strategy in South East Asia</td>
</tr>
<tr>
<td>Appendix 31</td>
<td>ACIAR Project on Understanding Animal Movement</td>
</tr>
<tr>
<td>Appendix 32</td>
<td>Epidemiological and Risk-based Studies of FMD in the MTM Zone</td>
</tr>
<tr>
<td>Appendix 33</td>
<td>Progress on the Study of FMDV Persistent Infection in Buffaloes</td>
</tr>
<tr>
<td>Appendix 34</td>
<td>FMD Research Activities of AAHL-Geelong</td>
</tr>
<tr>
<td>Appendix 35</td>
<td>Current Research Work on FMD in Japan</td>
</tr>
<tr>
<td>Appendix 36</td>
<td>Progress on FMD Vaccine Development</td>
</tr>
<tr>
<td>Appendix 37</td>
<td>SEAFMD Communication Program</td>
</tr>
<tr>
<td>Appendix 38</td>
<td>Animal Health Communication Strategy for South East Asia</td>
</tr>
<tr>
<td>Appendix 39</td>
<td>Update on Standards (OIE Code and Manual)</td>
</tr>
<tr>
<td>Appendix 40</td>
<td>SEAFMD Progressive Zoning (MTM, Upper and Lower Mekong)</td>
</tr>
<tr>
<td>Appendix 41</td>
<td>Review on the Economic Impact Studies done on FMD in South East Asian Countries</td>
</tr>
<tr>
<td>Appendix 42</td>
<td>Costs of FMD Eradication in the Philippines</td>
</tr>
<tr>
<td>Appendix 43</td>
<td>Review of SEAFMD 2020 Roadmap</td>
</tr>
<tr>
<td>Appendix 44</td>
<td>Progress with GF-TADs in Asia and the Pacific</td>
</tr>
<tr>
<td>Appendix 45</td>
<td>ASEAN Report</td>
</tr>
<tr>
<td>Appendix 46</td>
<td>SEAFMD Work Plan 2010/2011</td>
</tr>
<tr>
<td>Appendix 47</td>
<td>Delegates Meeting Report</td>
</tr>
<tr>
<td>Appendix 48</td>
<td>OIE Initiatives</td>
</tr>
<tr>
<td>Appendix 49</td>
<td>FAO Initiatives</td>
</tr>
<tr>
<td>Appendix 50</td>
<td>ASEAN Initiatives</td>
</tr>
<tr>
<td>Appendix 51</td>
<td>Progress with the OIE/AusAID PSVS</td>
</tr>
<tr>
<td>Appendix 52</td>
<td>HPED</td>
</tr>
</tbody>
</table>
Executive Summary

The 16th Meeting of the OIE Sub-Commission for Foot and Mouth Disease (FMD) in South East Asia was held from 15 to 19 March 2010 in Vientiane, Laos. The meeting was well attended with participants including Dr Bernard Vallat, Director-General for OIE; Dr Gardner Murray, President of the OIE Sub-Commission for FMD in South East Asia, Dr Bouphouang Khambounheuang, Director General of the Department of Livestock and Fisheries (DLF), Laos and Dr Ronello Abila, Regional Coordinator of the South East Asia Foot and Mouth Disease Regional Coordination Unit (SEAFMD RCU). The participants of the meeting included delegates from the SEAFMD member countries; other key countries; international organisations and members of the private sector.

The 16th Meeting of the OIE Sub-Commission for Foot and Mouth Disease in South East Asia was opened by His Excellency Sitaheng Rasphone, Minister of Agriculture and Forestry of Lao PDR. The Meeting included three major components: The 16th Meeting of the OIE Sub-Commission for FMD in South East Asia; a field trip to Bankeun Live Cattle Auction Market and Sweet Corn Processing Factory; and a close session of the OIE Delegates of South East Asia.

One of the highlights of the Meeting is the confirmation of support to China’s application to be an official member of the SEAFMD, thus recommending for the name of the Programme to be changed to “The South East Asia and China FMD Campaign” or SEACFMD. It was also recommended that Brunei and Singapore be invited to join the SEAFMD to finally provide full ASEAN coverage.

The Meeting showcased presentations on the qualitative assessment and economic impact of the SEAFMD Campaign, review of the economic impact studies done in South East Asia, and costs of FMD eradication in the Philippines. This is in addition to the reports on the FMD status globally and the situation in member countries. Collaborating agencies and private sector also presented reports on their activities with relevance to FMD. Furthermore, talks on the results of ongoing researches, both by collaborating agencies and postgraduate students, were given. The identified critical points in the Sub-region were presented, which pose major challenge for the control and eradication of FMD. The Meeting discussed future directions to re-focus disease control strategies to break the cycle of the FMD virus transmission.

The OIE Sub-Commission Meeting agreed to review the SEAFMD 2020 Roadmap document taking into consideration new findings on the epidemiology of FMD, in particular the identification of hotspots; changes in animal movement patterns; and new developments in the economic and political situation in the Region. The Meeting also recommended to develop a Vaccination Strategy to supplement the Roadmap.

The Meeting was considered highly successful and the Department of Livestock and Fisheries and Government of Laos were thanked for their excellent work in hosting the meeting.
Recommendations and Major Statements from the 16th Meeting of the
OIE Sub-Commission for FMD Control in South East Asia
Vientiane, Laos, 15–19 March 2010

That the OIE Sub-Commission for FMD in South East Asia:

General Recommendations

1. AGREE to the recommendations of the SEAFMD Sub-Commission Observers’ Group (Appendix XIX), NOTING that they expand upon and/or are complementary to, and should be read in conjunction with the following recommendations.

2. NOTE that a survey into the contributions of the SEAFMD Program using a semi-structured methodological approach revealed that although it had contributed significantly to FMD control in the Sub-Region, a number of activities could be strengthened to improve future program activities.

3. AGREE that qualitative semi-structured surveys provide useful tools to help assess programs and contribute to future direction and should be continued using enhanced methodological approaches.

4. NOTE the preliminary positive findings of a Cost Benefit Study – The Economic Evaluation of the SEAFMD Campaign – and that this study may provide economic justification for the regional SEAFMD Program and be used as a basis for future economic analytical work.

5. AGREE to provide comments on the draft paper on The Economic Evaluation of the SEAFMD Campaign by the end of March so that it can be finalised by 30 June 2010.

6. NOTE the world situation; the status of FMD in 2009 in South East Asia and retrospective analysis of outbreaks, and member country status.

7. AGREE that member countries seek to develop systems to support providing comments on the development of OIE standards, guidelines and strategies.

8. NOTE that the Sub-Commission proposes to FAO and OIE that the Global Conference for FMD will be held in Asia in early 2012 and different options such as China, Thailand or other countries will be confirmed as soon as possible.

Component 1: International Coordination and Support

9. SUPPORT ASEAN policies to broaden cooperation on animal health, including FMD with its dialogue partners and the ASEAN Plus Three (China, Japan and Korea) countries.

10. AGREE to submit a proposal for funding by the ASEAN Animal Health Trust Fund to support the SEAFMD Program.

11. REQUEST Thailand as the ASEAN lead country for SEAFMD with support from the SEAFMD RCU and ASEAN Secretariat to prepare a policy brief highlighting issues requiring decision and support in progressing the SEAFMD Campaign for AMAF through SOM-AMAF and ASWGL.

12. SUPPORT China’s application to become a full member of the SEAFMD.

13. RECOMMEND the program be called “The South East Asia and China FMD Campaign.”

14. RECOMMEND that Brunei and Singapore be invited to join the SEAFMD thus providing full ASEAN coverage.

15. AGREE to the holding of the Fourth FAO/OIE GF-TADs Regional Steering Committee Meeting in Bangkok, Thailand in the first week of July.

SEAFMD 16th OIE Sub-Commission Meeting, Vientiane, Laos
Component 2: Programme Management, Resources, and Funding

16. AGREE to a review of the SEAFMD 2020 Roadmap document to be completed for endorsement by Members and OIE by October 2010.

17. NOTE the costs and benefits of FMD eradication in the Philippines, the potential value to other Members of the Philippines’ methodology in assessing costs and benefits of FMD eradication, and for use in the OIE PVS Gap Analysis in the Philippines.

18. DEVELOP a socio-economic framework and methods linking epidemiology and economics as well as social costs to guide countries in conducting economic impact studies of FMD at different levels in each country taking into account the production systems and particularly the livelihoods of smallholder farming communities.

19. AGREE that the RCU progressively explore ways of improving donor harmonization and multi-sectoral collaboration in FMD control and eradication.

20. ENDORSE the concepts contained in the Executive Review of the proposed SEAFMD Roadmap tool and AGREE that the full toolkit be developed in close consultation with SEAFMD members and other relevant parties.

21. NOTE the progress of the country reports including National Plans for 2010.

Component 3: Public Awareness and Communication

22. NOTE development in the SEAFMD Communications Strategy; AGREE to the development of an award system for exemplary performance in SEAFMD control; and THANK the Philippines FMD Task Force for offering to prepare a Communications Strategy for FMD Control.

23. NOTE the development of an Animal Health Communications Strategy for South East Asia; and AGREE to the critical importance of effective communications and the need for proper resourcing and the development of national action plans.

24. NOTE that the SRR-SEA is in the process of employing a Communication Officer.

Component 4: Disease Surveillance, Diagnosis Reporting and Control

25. NOTE the outbreak investigation activities including the development of an outbreak investigation module by the SRR-SEA in conjunction with FAO and CIRAD.

26. SUPPORT the development and introduction of methodologies to understand the true prevalence of FMD.

27. AGREE to refine existing surveillance strategies.

28. NOTE the SEAFMD vaccination draft strategy paper and AGREE to provide comments on the paper by 23 April 2010 so that the paper can be finalized following further expert contributions for consideration by National Coordinators in August 2010.

29. NOTE the EC HPED Program and in particular vaccine bank proposals which can include FMD; and AGREE that SEAFMD Members support the development of criteria for FMD vaccine bank arrangements.

30. AGREE that, although financial resources both in country and from donor agencies are essential to the Program’s success, equally important are training, proper design of programs, national commitments, vaccine quality, trained staff and monitoring for the effectiveness of agreed vaccination programs.
31. RECOMMEND that FAO and OIE conduct joint pilot FMD vaccination studies in the Upper and Lower Mekong taking into account changes in epidemiological situation; and conducts a socio-economic impact assessment of FMD vaccination.

32. NOTE the activities of the OIE Reference Laboratory on FMD in Pakchong, Thailand and inter-laboratory testing program development.

33. AGREE to the recommendations of the Laboratory Network meetings held in Pakchong, Thailand in 2009 and Vientiane, Lao PDR from 10-11 March 2010.

34. SUPPORT the need for improved reporting and submission of samples to support management and control of FMD, characterization of the virus and epidemiological analysis.

35. NOTE that the Department of Livestock Development (DLD) of Thailand will make available to Greater Mekong Sub-Region (GMS) Members on request details of its National Identification and registration (NID) system and that a training course on the use of NID system will be conducted.

36. NOTE the development of an OIE/FAO pathway for declaration of FMD status in countries; and that this pathway will encourage the development of national prevention, control and eradication strategies as part of the process.

Component 5: Policy, Legislation, and Standards to Support Disease Control and Zone Establishment

37. AGREE that progressive zoning approaches are highly relevant and form key components of the SEAFMD Program, and that they need to be reviewed and adjusted on a regular basis in the light of epidemiological developments and risk status.

38. AGREE that more in-country meetings be held on zoning policies and programs; and that zoning issues be formally considered at the National Coordinators Meeting.

39. AGREE to the recommendations arising from the MTM Commission, UMWG and LMWG Meetings.

40. NOTE information, conclusions and recommendations on epidemiological and risk-based studies of FMD in the MTM zone.

41. AGREE that a review of the MTM Program be carried out in the light of these observations with a view to determining its future direction.

Component 6: Regional Research and Technology Transfer

42. NOTE progress with the ACIAR Project on animal movement.

43. AGREE that SEAFMD members and the RCU continue to work with ACIAR Project Teams and key organizations such as FAO to improve knowledge and understanding of livestock movement to support animal disease prevention and control.

44. NOTE progress on the study of FMDV persistent infection in Swamp Buffalo, FMD research activities of AAHL-Geelong, and current research work on FMD in Japan.

45. AGREE that the SEAFMD revises its R&D strategy in the light of contemporary developments and future priority needs.

46. NOTE Industry (Merial and Intervet) support to the development of a SEAFMD Vaccine Strategy and offer to provide advice in the development of the strategy.
**Component 7: Livestock Sector Development Including Private Sector Integration**

47. REQUEST the RCU Coordinator, in view of the critical need for industry engagement in the SEAFMD Program to put effect into improving industry engagement.

**Component 8: Monitoring and Evaluation**

48. AGREE that Monitoring and Evaluation (M&E) is a critical tool to support program management.

49. NOTE that on the basis of advice from an expert consultant recommended by AusAID an M&E plan has been developed for the RCU and is currently being implemented.

**Acknowledgments**

50. EXPRESS thanks to the Government of Lao PDR, Ministry of Agriculture and Forestry (MAF) and Department of Livestock and Fisheries (DLF) for hosting an outstanding and successful meeting.

51. THANK to donors and organisations notably Australia, Thailand, New Zealand, France, Japan, OIE, FAO and private sector for their support and contributions to the SEAFMD Campaign.

52. REQUEST that Indonesia consider hosting the next meeting of the OIE Sub-Commission for FMD in March 2011.
1. INTRODUCTION

The 16th Meeting of the OIE Sub-Commission for Foot and Mouth Disease (FMD) in South East Asia was held from 15 to 19 March 2010 in Vientiane, Laos. The meeting was well attended with participants including Dr Bernard Vallat, Director-General for the World Organisation for Animal Health (OIE); Dr Gardner Murray, President of the OIE Sub-Commission for FMD in South East Asia; Dr Bounkhouang Khambounheaung, Director General of the Department of Livestock and Fisheries (DLF), Laos and Dr Ronello Abila, Regional Coordinator of the SEAFMD Regional Coordination Unit. The participants of the meeting included delegates from the SEAFMD member countries; other key countries; international organisations and members of the private sector.

The 16th Meeting of the OIE Sub-Commission for Foot and Mouth Disease in South East Asia was opened by His Excellency Sitaheng Rasphone, Minister of Agriculture and Forestry of Lao PDR. The meeting included three major components: The 16th Meeting of the OIE Sub-Commission for FMD in South East Asia; a field trip to Bankeun Live Cattle Auction Market and Sweet Corn Processing Factory; and a close session of the OIE Delegates of South East Asia.

2. OPENING CEREMONY

Opening remarks were given by Dr Bounkhouang Khambounheaung, Director General of the Department of Livestock and Forestry (DLF), Laos. He warmly welcomed the participants to the 16th SubCom Meeting and stressed the importance of FMD and the role that animal movement plays in its spread. In 2009 alone, Laos has experienced 10 outbreaks of FMD in 6 provinces, affecting 1,047 head of cattle of which 19 died, and 241 head of buffaloes. The Department of Livestock and Fisheries of the Ministry of Agriculture and Forestry implemented control measures during such outbreaks and has sent samples to the Regional Reference Laboratory for confirmation.

Dr Gardner Murray, President of the OIE Sub-Commission for FMD control in South East Asia, described the meeting as a “stocktake meeting.” The Phase of SEAFMD Campaign will finish by December of this year and may continue into next year but a long term programme will be necessary. Phase 4 which is still to be submitted for funding is seen to operate from 2011-2014. The meeting will tackle three main issues: socioeconomic assessments, technical/professional issues, and policy/strategic.

The economic study of the programme over the last 10 years as well as the results of a qualitative survey will be presented. With regard to the technical items, animal health approaches should be analysed if they remain relevant or need tweaking, which is normal. There is a need to take stock of what is being done on zoning, hotspots, FMD prevention, maintenance of freedom of countries, livestock movement, vaccination and vaccination strategies. On policy/strategic issues, there is a need to continue to improve linkages with other funding bodies and organizations like FAO, Japan, EU and ASEAN and also linkage with the industry. This ultimately leads to the examination of the SEAFMD 2020 Roadmap.

Dr Bernard Vallat, Director General of the OIE, in his speech expressed gratitude to the Government and people of Lao PDR for hosting the 16th Sub-Commission meeting to review progress achieved in the SEAFMD Campaign and the progress made by the Members as well as other programmes for which the OIE participates actively in the region. The main objective is to control FMD in the Region by joining forces of all Members and to give appropriate tools to veterinary services including good governance principles to better prevent and control FMD and other priority animal diseases. Thailand was thanked for continuing to host the OIE Sub-Regional Representation for South East Asia and the PSVS Programme Unit; the SEAFMD Members for their high commitment to respect the objectives of the SEAFMD, PSVS, HPED as well as other programmes managed by OIE; and the rest of the participants. Donors and governments were thanked for their support to SEAFMD Campaign and other veterinary programmes. Special thanks were conveyed to the Australian Government which has been the main provider of funds to the SEAFMD Campaign since it started in 1997 and also to the Governments of New Zealand, Japan and France who also supported and provided resources for the SEAFMD Campaign. The European Union was welcomed as it joins the club of donors through the new programme HPED.
Dr Vallat stressed that FMD is one of the most important infectious diseases of livestock because of its serious direct negative effect on health, production and food security and its indirect economic effects on trade in animals and animal products. Recently, its importance in Asia has been highlighted with the outbreak of FMD serotype A in China and Korea and the resurgence of serotype O Cathay topotype in Chinese Taipei.

Dr Vallat also mentioned that significant successes were achieved by the SEAFMD Campaign since it commenced in 1997 including the development of high level scientific networks among the participating Members and, increasingly, with neighbouring countries such as China; major improvements in laboratory diagnostic capacity, disease management and surveillance systems; the introduction of progressive zoning approaches; engagement of industry and enhanced communications, public awareness and training; and efficient lobbying to convince governments to do more for the control of diseases. SEAFMD’s approach in strengthening animal health systems has been used and will continue to be used by members in preventing and controlling other priority transboundary animal diseases such as highly pathogenic avian influenza (HPAI) and classical swine fever (CSF). During the Global Conference for FMD Control held in Paraguay in June 2009, the SEAFMD has been cited in several presentations, by the World Bank and the European Commission, as a good model for regional control of FMD that could be adopted in other parts of the world.

It was stressed that for SEAFMD to succeed, it needs the support of its neighbours like China which has been a very strong supporter of the SEAFMD Campaign through its active participation in the Upper Mekong Zoning Working Group. To strengthen China’s participation, the SEAFMD Members and the OIE has officially requested China to join the SEAFMD Sub-Commission, and the positive announcement to be made by China during this week is greatly welcomed.

The meeting was officially opened by His Excellency Sitaheng Rasphone, Minister of Agriculture and Forestry of Lao PDR. He thanked the OIE for choosing Laos as the host for the 16th Meeting of the OIE Sub-Commission. The meeting provides Laos with an opportunity to find strategies to combat FMD in the framework of international cooperation. The livestock sector of Laos plays an important role in the national economy and is one component in the poverty alleviation program of Laos, promoting the livestock sector to replace the shifting agriculture in rural communities. The number of provinces with FMD outbreaks has increased if compared to the year 2006 when only one province was affected. In 2007, outbreaks occurred in 2 provinces and in 6 provinces in years 2008 and 2009. The source of infection is suspected to be from animal movement. As Laos is located in the center of Indochina peninsula and is a land-locked country, the number of animals imported into the country for domestic consumption and re-exportation of animals from Thailand to Vietnam and China is increasing.

The Ministry of Agriculture and Forestry through the Department of Livestock and Fisheries have put efforts to minimize the spread of FMD with support from international organizations and bilateral agreement with neighboring countries such as Thailand, Vietnam and China, as well as ACIAR and SEAFMD of OIE which built capacities for disease surveillance and diagnosis. Laos hopes that this kind of support will continue in the future.

3. PROGRESS OF THE SEAFMD CAMPAIGN

i) The SEAFMD Campaign Progress Report 2009/2010

Dr Ronello Abila, Regional Coordinator for the SEAFMD Campaign, reported on the progress of the Campaign from March 2009 to February 2010.

The SEAFMD Campaign continues to implement the programme based on the SEAFMD 2020 Roadmap. Progressive zoning approach is the main strategy being pursued – to control FMD in identified priority areas and progressively expand the zones to other areas. At the moment the SEAFMD member have agreed to set up zones in the Malaysia –Thailand-Myanmar (MTM) Peninsula, Upper and Lower Mekong, Sagaing in Central Myanmar, Region 2 in Thailand and Red River Delta in northern Vietnam.

OIE recognized FMD free countries (Brunei Darussalam, Indonesia and Singapore) without vaccination are maintained in 2009. Similarly, OIE recognised FMD free zones of Sabah and Sarawak in Malaysia and the four zones in the Philippines were also maintained. No outbreak was reported in the Philippines since January 2006, and its application for zones 1 and 3 in Luzon Island as FMD free without vaccination is expected to be approved by OIE in May this year.
FMD outbreaks continued in the mainland of South East Asia. There is significant reduction in the number of outbreaks in Laos, Malaysia and Thailand. However, significant increase of outbreaks was reported in Vietnam. A significant epidemiological observation on FMD outbreaks in Vietnam is the appearance of serotype A in the northern part, which was in the previous years, confined only in the southern part. The increased number of movements of cattle from neighbouring countries to the north of Vietnam could be a possible factor to these outbreaks.

A big boost to the SEAFMD Campaign is the approval of AusAID of AUD 2.6 Million to support the programme from March 2009 to June 2011. Among the focus of the new funding is on the strengthening of the Monitoring and Evaluation (M&E) capacity of the RCU and funding to support in-country training in outbreak investigation and management and emergency fund to contain outbreaks.

The SEAFMD Regional Reference Laboratory in Pakchong, Thailand has been finally approved as an OIE FMD Reference Laboratory during the 77th OIE General Session in May 2009.

Through the support of FAO/ADB GMS TADs project and in collaboration with AusAID/SPSCB and ACIAR Animal Movement project, the SEAFMD Campaign implemented a comprehensive study on understanding the animal movement pattern in GMS countries and identification of critical nodes where strategic intervention could be launched in the near future.

To enhance coordination and sharing of experiences, and also to build capacity of members to improve FMD control programmes, various meetings were organized and trainings were conducted in close collaboration with the FAO Regional Office for Asia and the Pacific.

The FMD-free status without vaccination for the northern and southern part of Luzon in Philippines is now for final approval at the OIE General Session in May 2010.

Further details of this presentation are provided in Appendix III and Appendix 03.

**ii) Qualitative assessment on the achievements of the SEAFMD Campaign**

Dr Sharie Michelle Aviso, Project Officer of the SEAFMD Campaign, presented the report on the qualitative assessment of the SEAFMD Campaign.

Having been in operation for almost 13 years already, the Regional Coordination Unit (RCU), Members and AusAID were in view that as the SEAFMD Programme is now a mature programme, an independent evaluation was warranted. One of the outcomes of the subsequent evaluation during March 2009 was the identification of the conduct of a stakeholder survey as one means to support the strengthening of the Program’s M&E aspect. The interviews, which were conducted on September 2009 to February 2010, aimed to collect information on the main outcomes catalyzed by the SEAFMD Programme from 1997 up to the present. Furthermore, the interview gathered information as to the respondents’ suggestions on how to further improve the implementation of the SEAFMD Programme.

All stakeholders interviewed consider the SEAFMD to have contributed and continues to contribute significantly to the progress of FMD eradication in the Sub-Region particularly in the areas of improving international cooperation, establishment of networks, policy development and political support, technical guidance, capacity building and tapping of donors. They are in agreement that the SEAFMD Campaign must continue beyond 2011 as there is still much to be done to achieve freedom from FMD. Being a borderless and highly infectious disease, FMD control is an activity that warrants a Regional Strategy and the SEAFMD Campaign is the “conductor” that ensures the harmony of strategies employed in the national programs of member countries.

Deficiencies and/or areas needing strengthening include financial support to member countries, research works on the nature of the FMD virus, activities promoting the SEAFMD Campaign in the Regional level, lobbying for support of national governments to national FMD control programs, training of staff at the grassroots level, and tapping of other offices that could act as partners in the control of FMD both at the national and Sub-Regional level.
The results of the stakeholder survey together with the economic evaluation of the SEAFMD Campaign are deemed to contribute to the planning of future activities of the SEAFMD Programme.

Further details of this presentation are provided in Appendix IV and Appendix 04.

**Discussion**

Key issues raised in discussion included:

- In response to the need for financial support to member countries, Dr Bernard Vallat, OIE Director General, affirmed that OIE is set to support national strategies and national campaigns in addition to the SEAFMD Programme’s direction to focus on in-country activities. OIE is now working on a new pathway supporting countries to achieve freedom with or without vaccination. New proposal will allow countries to send official strategies to be sent to OIE for comment and revision. This will allow OIE to be involved in the design and should smoothen access to official freedom. This would also deal with vaccine bank thus there is a need to decide which countries will be involved.
- One of the inputs in the meeting is that this kind of survey should be included in future planning.
- Dr Mohd Naheed Mohd bin Hussein of Malaysia shared that stakeholders seem to now understand that SEAFMD has contributed to FMD control in Malaysia. Educating and awareness raising for traders and stakeholders have been good. Change is natural as has occurred from 1997 and now there is a need to re-strategise. The achievement of SEAFMD 2020 is possible as Indonesia, Philippines and parts of Malaysia are free, meaning the Campaign is moving forward.
- Dr Sen Sovann of Cambodia stressed that the ability of the country to control illegal movement of animals is important. The vaccine bank will need to work with the traders.

iii) Economic evaluation of the SEAFMD Campaign

In tandem with the qualitative assessment study, the economic impact of the SEAFMD Campaign was evaluated by Dr Ross McLeod utilizing cost benefit analysis. Around $6 million has been invested in SEAFMD since 1997 to support FMD control activities in the region through the support of primarily AusAID, NZAID, Governments of Thailand and France and other collaborating agencies. So far, the programme has helped in accelerating FMD elimination in the Philippines and helped stop the spread of the Asia 1 FMD virus serotype from Myanmar to Thailand in 2004. These benefits were calculated to cover the costs of SEAFMD campaign to date. FMD elimination is the overarching goal of the SEAFMD Campaign and requires that national programs adopt zone-based vaccination, movement control and surveillance strategies. The overall costs of activities to achieve elimination are estimated to be $46 million per year until 2015, and then $10 million per year until elimination is achieved in 2020. The estimated benefits to the region in terms of improved animal production, and higher prices received for livestock produce greatly outweigh the costs of elimination.

Continued investment in the SEAFMD regional coordination unit is required to harmonise control activities, share information and provide technical assistance to member countries. A benefit cost-ratio of 3:1 was estimated for this investment, which indicates that for each dollar invested, three dollars of economic benefits will be generated.

Further details of this presentation are provided in Appendix 05.

**Discussion**

Key issues raised in discussion included:

- Dr Reildrin Morales of the Philippines remarked that the 5% attribution is a conservative figure. This was agreed upon by Dr Abila which said that the assumption is that vaccination will be very targeted.
- Dr Vallat thinks that the study is a good start but international public good components have not been incorporated as much as it could be.
- Dr Subhash Morzaria of FAO said that it is a very good opportunity to get this study right. Case studies can be used. It is also possible to stratify cost benefits according to production systems. Dr Ross McLeod agreed that it can be done although it will take time.
- Dr John Edwards of One Health Solutions shared that coordination functions entail limited resources but deliver good outcomes. Spillover effects are very important, which extend to developed world. The amount of 46 million per year is a modest and attractive amount. It may be useful to look at the impact on livelihoods where animals were vaccinated as well as on sociological impacts.
4. UPDATE ON FMD STATUS

i) Update on the world situation in relation to FMD

Dr Donald King, Head of the Molecular Characterisation and Diagnostics of the World Reference Laboratory for FMD (WRLFMD), presented the world situation on FMD as well as the activities if WRLFMD for 2009.

During 2009, 1037 samples were submitted to WRLFMD of the Institute of Animal Health in Pirbright, UK from 37 countries (predominantly from FMD endemic regions of Africa and Asia). FMD viruses were recovered from 535 samples; comprising serotypes O \( (n=291) \), A \( (n=179) \), Asia 1 \( (n=7) \), SAT 1 \( (n=28) \), SAT 2 \( (n=27) \) and SAT 3 \( (n=3) \). No isolates belonging to FMD serotype C have been characterised since 2004 when the last outbreaks due to this serotype were recognized in Kenya and Brazil. The global surveillance of FMD was further enhanced by data sharing between the twelve partner laboratories of the FAO/OIE Reference Laboratory Network. From a global perspective, there were no FMD outbreaks in countries listed by the OIE as FMD-free without vaccination during 2009. However, outbreaks in Chinese Taipei (Taiwan) and a zone in Columbia led to the loss of previously FMD-free with vaccination status in these locations. More recently in 2010, serotype A outbreaks have been reported in the Republic of Korea.

Seven epidemiological pools have been proposed to describe the global distribution of FMDV. Within these pools, tailored vaccines and diagnostic tools may be appropriate for the specific viral lineages that circulate within each region. Pool 1 comprises SEA and China where three FMD serotypes (O, A and Asia 1) are currently circulating. Viral sequences from recent FMD serotype A (ASIA to potype) outbreaks in China (Hubei, Jiangsu, Guizhou, Shandong provinces) and the Republic of Korea are genetically related to viruses recovered from countries in SEA, while serotype O outbreaks in Chinese Taipei and Hong Kong were found to be due to the pig-adapted CATHAY toptype. The epidemiology and control of FMD in the region is further complicated by the presence of multiple genetic lineages for serotype O (CATHAY toptype, ME-SA toptype [PanAsia and PanAsia-2 lineages], SEA toptype). Looking further afield, the detection of a new serotype O lineage (ME-SA toptype: named O/India-2001) into the countries to the north and east of India (Bhutan, Nepal and Bangladesh), as well as a single isolate from Iran may provide early evidence for the emergence of a new pandemic strain.

Characterization of circulating strains and vigilance for the introduction of new FMDV lineages into SEA remain critical activities to support the monitoring and control of FMD in the region.

Further details of this presentation are provided in Appendix 06.

Discussion

Key issues raised in discussion included:

- Dr Gardner Murray queried about the sparse number of samples collected. Dr King replied that it might be due to the presence of RRL SEA which receives most of the samples. To be able to make more meaningful analysis, more samples must be collected to enable further characterization and sequencing.
- All serotype A’s in SEA are closely linked with each other but phenotype changes are still undetermined. The A22/Iraq vaccine for serotype A will not protect against the serotype A in Malaysia.

ii) Status of FMD in 2009 and retrospective analysis of FMD outbreaks in South-East Asia

Dr Alexandre Bouchot, Technical Adviser of the SEAFMD Campaign, presented the status of FMD in 2009 and the retrospective analysis of FMD outbreaks in South East Asia.

Since 2007, the reporting system have gradually shifted from monthly paper reports transmitted to the RCU to a country-based data capture on the Regional Animal Health Information System (WAHIS Regional Core), via ARAHIS. Any in-depth analysis requires reliable data. That is why it is essential that every country in the Region transmits its data on a regular basis and with harmonized procedures.

Indonesia has successfully maintained its FMD free-status and Philippines did not report any outbreak this year, as since 2006, and has achieved its goal to get Luzon 1 and Luzon 3 provinces recognized by OIE as free of FMD. No outbreak has been reported in the Yunnan Province of PR of China which is a part of the Upper Mekong Zone. The major epizootics reported in 2006, mainly in Vietnam did not reoccur and the total amount of outbreaks reported (around 500) can be compared with all the other years.
The serotype O (SE Asia topotype) remains the majority of reported serotypes for the whole of South-East Asia. Serotype A is present in Vietnam, Thailand and after having been spreading in Malaysia in 2008, has occurred in North Vietnam in 2009.

The most affected reported species are still cattle followed by buffalo in South-East Asia.

Further details of this presentation are provided in Appendix V and Appendix 07.

Discussion
Key issues raised in discussion included:
- Countries should be encouraged to submit more samples. To be able to understand serotype O, there must be sub-lineaging too to be able to make more analysis. Pakchong and Pirbright should work together to pinpoint the location of the different lineages.
- Dr Chris Morrissy mentioned that in Vietnam, the difficulty is that the outbreaks are already old and that samples cannot be taken anymore. Based on the LabNet report, probang samples should be taken in this situation.
- Participatory information gathering has been successfully employed in Myanmar which can be expanded in the Sub-Region.

5. MEMBER COUNTRY FMD STATUS REPORTS

i) Cambodia

Dr Sorn San presented the status report for Cambodia, starting with a summary of outbreaks from 2004 to 2009. There were 35 outbreaks of FMD reported in 13 provinces (Kandal, Odar Meanchey, Krachech, Kampong Cham, Pursat, Kampong Speu, Prey Veng, Battambang, Kampong Chhnang, Takeo, Kampot, Svay Rieng) affecting 2,409 head of cattle, 628 head of buffaloes and 680 head of pigs which have shown the clinical signs of FMD from January to December 2009 and among that 70 head of cattle, 65 head of buffaloes and 107 head of pigs died.

Dr Sorn San described the different activities under each SEAFMD component, the details of which are provided in Appendix VI and Appendix 08. In close cooperation with SEAFMD/OIE and member countries, Cambodia foresees an effective FMD control campaign through strengthening FMD surveillance and information system, controlling animal movement and accreditation of veterinary services.

DAHP is seeking support from AusAID, JICA, ACIAR, OIE, FAO, USDA, EC/SLPP, and other bilateral support in the area of animal health research and support to veterinary services to protect the national herds and flocks from the intrusion of disease, protect consumer health and facilitate animal trades.

There are enough human resources in Cambodia but the issue is the lack of funding to support the staff and activities.

ii) Indonesia

Dr Agus Wiyono presented the country status report for Indonesia. Indonesia declared its freedom from FMD in 1986 and was recognized by OIE in 1990. In order to maintain the free status for FMD, the following measures are being done:
- Strict implementation of policies and legislations on:
  - Animal importation procedure
  - Animal product and by-product importation procedures
- Improved diagnostics and surveillance
- Improved disease reporting system
- Integrated coordination with private sector
- Improved public awareness and communication system
- Implementation of FMD Indovet Plan (emergency preparedness for FMD)

The INDOVET Plan for FMD has been revised in 2009.

The progress of Indonesia against the eight SEAFMD components was presented, the details of which are provided in Appendix VII and Appendix 09.
iii) Laos

Dr Phouth Inthavong presented the country status report for Laos.

FMD remains endemic in Laos. From January to December 2009, 10 outbreaks were officially reported in 6 provinces of Laos, namely; Champasak, Xiengkhouang, Oudomxai, Luangnantha, Xayabouli and Khammuane. When the outbreaks occurred, control measures such as animal movement control in the outbreak area; sample collection and testing at the National Animal Health Centre and Regional Reference Laboratory for confirmation have been implemented. Sixteen samples were submitted to the laboratory of which 11 (68.75%) were positive for the presence of FMD Type O antigen. Outbreaks occurred in January, February, August and September; the first wave of outbreak may be a sequel of the outbreak in 2008. Overall, the total number of cases was 1,258 of which 1,047 cattle and 241 buffaloes were affected. Compared to year 2008, the number of infected animals and number of cases were reduced.

In addition to the OIE SEAFMD RCU, ACIAR (through the ACIAR Project AH/2006/025 - Understanding Livestock Movement and the Risk of Spread of Transboundary Animal Diseases), TICA and Lao-Thai Bilateral Cooperation, JICA and FAO/ADB TADs in GMS Project, support Laos in its FMD control program. Furthermore, bilateral programs with Vietnam and Yunnan Province of China are ongoing.

The progress of Laos against the eight SEAFMD components was presented, the details of which are provided in Appendix VIII and Appendix 10.

The constraints encountered in the implementation of national animal health information are the following:

- Poor reporting from the field; reports are oftentimes received too late, with a delay of 2 or 3 months
- Limited human resources in the veterinary services, limited field visual materials and financial resources to support the launching of animal health information to target audiences
- Limited farmer knowledge on the economic effect of FMD

iv) Malaysia

Dr Naheed Mohd bin Mohd Hussein presented the country status report for Malaysia. FMD is a notifiable disease in Malaysia and as such, there is a national control and eradication programme and annual federal budget provided by the Ministry of Agriculture and Agro-Based industry for the implementation of control and eradication measures.

The States of Sabah and Sarawak remains free of FMD and in Peninsular Malaysia, the status of FMD has improved significantly in year 2009, reducing outbreaks by 24% compared to year 2008. There was continuity of better reporting of FMD outbreaks. There were 111 FMD outbreaks from January to December with a range of 0 – 34 outbreaks and a mean of 9 outbreaks per month. Temporally, majority of the outbreaks were detected in the last quarter (festive season) of the year and spatially, outbreaks clustered in two states namely Kedah and Kelantan in the MTM Zone. These outbreaks were related to animal movement - imported animals that were exposed to FMDV (NSP positive) and low vaccination coverage. In the first quarter of the year, FMD outbreaks have been well under control.

The new livestock importation policy was to enable to meet the shortfall in the importation from Australia and have better risk management measures for live animal imports from Thailand. Even though the new strategy for control and eradication of FMD has tremendously reduced the illegal movement of live animals across the border, there were still cattle that were illegally brought into the country causing outbreaks. Another factor contributing to the increase is the endemic status where the disease spread laterally due to illegal movement within the country. FMD serotype O (39%) is still the most common isolate and to a lesser percentage (6%) serotype A. Diagnosis for FMD is done at the National FMD Laboratory in Kota Bharu, Kelantan. The main constraint encountered is the control of illegal movement of animals. Animal health and veterinary measures related to FMD control include strategic vaccination, legislation, disease investigation, surveillance and reporting.

The new national control and eradication strategy was already approved. The annual budget was used to control FMD. Proposal for the budget for implementation of this strategy has been prepared and is for submission to the Economic Planning Unit for approval for the 10th Malaysian Plan 2011-2015.
The Epidemiology Section for disease surveillance and reporting undertook an epidemiological study of outbreaks in 2009. The most common serotype identified was serotype O and to a lesser percentage serotype A. The topotype for serotype A was Asia and SEA-Myanmar 98 and ME-SA Pan Asian (1 case) for serotype O. Investigations on the source of the Pan Asian O are being undertaken. The study also identified critical nodes related to the outbreaks. Control of FMD was done more effectively by applying the “Outbreak Index Control Management” operating procedures. Further details of this presentation are provided in Appendix IX and Appendix 11.

v) Myanmar

Dr Kyaw Sunn presented the FMD country status report for Myanmar. FMD outbreaks have been recorded in all states and divisions of the country. In 2009, there is an increase in the incidence of FMD in the country. A total of 21 outbreaks were reported and all were due to serotype O. In 2008 a total of 11 outbreaks occurred in 6 States and Divisions. Unfortunately there have been FMD outbreaks in buffaloes in Cyclone Nargis affected areas. A total of 325 cattle and buffaloes were infected by serotype O. In 2009, there were 21 outbreaks in 9 States. In January – February 2010, 8 outbreaks occurred in 3 Divisions.

The Livestock Breeding and Veterinary Division (LBVD) of Myanmar is actively participating and supporting the OIE SEAFMD in coordinating the Malaysia-Thailand-Myanmar (MTM) campaign programme for FMD control among ASEAN countries.

JICA Phase II is now implementing the activities in the development of Mandalay Regional Laboratory and neighboring regions for disease control measures. The project “Strengthening the National Capacity for the production of FMD Vaccines” is now being implemented in the National FMD Laboratory with the support of IAEA (TC Project MYA/5/015). According to the project document, four staff had been trained in RRL for two months.

The budget allotment for FMD control has been increased year by year by the Government of Myanmar. Every year, the FMD Laboratory produces about 150,000 doses of monovalent FMD vaccine for cattle, buffaloes, sheep, goats and pigs. New quarantine station and pre-quarantine station have been established in Thilawa and Myeik for export of live animals responsible for promoting animal health and controlling animal diseases. In order to follow up the action plan of SEAFMD, Myanmar has gradually participated in the collaboration and cooperation with neighboring countries in the region and with international agencies. Because there is limited national budget and resources for the financial support of FMD control activities, support from donor agencies in the form of bilateral or regional veterinary services projects is essential. Further details of this presentation are provided in Appendix X and Appendix 12.

vi) Philippines

Dr Reildrin Morales presented the FMD country status report for the Philippines. The FMD Eradication Project (GCP/PHI/049/AUL) formally ended last 30 June 2009, 51 months into attaining and maintaining a zero case scenario in Luzon while maintaining the Office International des Epizooties (OIE) recognition of the Islands of Mindanao, Visayas, Palawan and Masbate as FMD Free Zones without Vaccination.

This is the period where technicalities ranging from concerns on the mixing of vaccinated and unvaccinated animals as well insufficient vaccination coverage have been a significant constraint in the country's attempt for OIE recognition of Luzon’s 3 zones as FMD Free Zone without Vaccination (Zone 1 and 3) and FMD Free Zone with Vaccination (Zone 2).

On 15-21 June 2009, a team of OIE experts visited the Philippines to provide assistance in the OIE application of Luzon as part of the commitment made by the OIE Director General to ensure the approval of Luzon’s application in the OIE General Assembly in December 2009. Upon the evaluation of the OIE mission, it was recommended that Luzon keep its 3 zones and apply them as FMD Free without Vaccination with the appreciation that Zone 2 will comply with the 12-month non-vaccinating period prescribed by the OIE Terrestrial Animal Health Code and provide documentations indicating the last FMD vaccination conducted in the area.

To substantiate FMD Freedom, intensified disease monitoring and surveillance was conducted through documentation of negative monitoring reports, negative incidence reports and slaughterhouse monitoring reports which are submitted monthly by the livestock inspectors to their respective city and provincial veterinary offices. Serosurveillance is also continuously done twice a year per island or island province in the OIE recognized FMD Free Areas of Visayas, Palawan, Masbate and from each region in Mindanao with 90 samples (30 swine,
30 large ruminant, 30 small ruminant) submitted per collection. The FMD Laboratory of the Bureau of Animal Industry has tested a total of 7,533 samples submitted for serosurveillance as of this time.

Further details of the report of the Philippines are provided in Appendix XI and Appendix 13.

vii) Thailand

Dr Wacharapon Chotiyaputta presented the FMD country status report for Thailand.

There were 50 FMD outbreaks that occurred in Thailand in 2009. FMD outbreaks decreased from 52 outbreaks in 2008 to 50 outbreaks in 2009. It was found that in 2009, FMD serotype O was significantly predominant compared to serotype A. The outbreaks mostly occurred in northern, northeastern and southern regions of Thailand (3 outbreaks in central, 9 outbreaks in northeastern, 24 outbreaks in northern and 14 outbreaks in southern part). The susceptible cases/ deaths were 33,418 / 3165/ 89 respectively. The strain of FMD virus was diagnosed as serotype A = 9 outbreaks (18%), serotype O = 19 (38%), unable to type = 20 (40%) and not sampled = 2 (4%), respectively. Molecular epidemiology of FMDV serotypes O and A in 2009 were studied, serotype O was defined as SEA topotype, serotype A was defined as Asia topotype. According to the field investigation, animal movement was still a major factor associated with the occurrence of FMD. Animal movement was reported to be associated in 28 outbreaks (56%).

The National Livestock Identification and Registration (NID) System is being implemented to identify individual animal or to distinguish herd, strengthen animal health control, enhance epidemiological outbreak investigation, identify source of infection, differentiate the risk factors of the outbreak, facilitate traceability and to establish consumer’s confidence on food safety and market accession. The National Livestock Identification and Registration System is a supportive measure for effective disease prevention and control operation. Ear tags in red, yellow and green were applied in targeted area before expanding to countrywide which is the next step. Red ear tags will be used for imported animal whilst yellow tags will be used in normal zone and green tags will be used in southern and eastern part of the country which are the areas applying for FMD free zone. Currently, more than 90% of cattle in Region 2 are ear-tagged and 70% of which recorded in the on-line registration system.

The progress of Thailand against the eight SEAFMD components was presented, the details of which are provided in Appendix XII and Appendix 14.

viii) Vietnam

Dr Van Dang Ky presented the FMD country status report for Vietnam. In 2009, FMD outbreaks were reported from provinces in the North Central and Central Coastal areas, Central Highlands and mountain provinces, and one province in the South. Totally, FMD outbreaks occurred in 229 communes, and 87 districts of 27 provinces. The number of infected animals was 8,360 (7,861 cattle and buffaloes and 499 pigs) in which 432 cattle and buffaloes and 429 pigs died and/or were destroyed for control purposes. FMDV serotype O is predominant in provinces in the North while FMDV serotype A were found in the Northern mountain (Son La, Bac Giang and Ha Giang), Central Highlands (Kon tum) and Mekong River Delta province (Long An).

During the reporting period, a number of public awareness raising activities have been conducted such as the printing of small booklets and leaflets on FMD control and prevention. No study was conducted to measure the impact of such activities yet. No public awareness & communication program targeting traders was undertaken. There is a strong need to improve public awareness and communications policies and activities.

Vaccine efficacy will be monitored closely to make sure the vaccine strains are perfectly matched with the field virus strains. Further details of this presentation are provided in Appendix XIII and Appendix 15.

6. REPORTS FROM OTHER MEMBERS OF THE SUB-COMMISSION

Australia

Dr Peter Black presented the report for Australia. Activities with relevance to FMD include the FMD Symposium in Melbourne in April 2010, establishment of FMD vaccine bank, participation in the activities of the Programme for Strengthening Veterinary Services (PSVS), and providing technical advise and support to AusAID. Several programmes and projects also continue to contribute to research and strategic policy development in the Region.

SEAFMD 16th OIE Sub-Commission Meeting, Vientiane, Laos
Further details of this presentation are provided in Appendix 16.

**New Zealand**

Dr Derek Belton from the Ministry of Agriculture, Forestry and Fisheries presented the report of New Zealand. The key current FMD issue in New Zealand is the renewal of the FMD vaccine bank contract. Important strain selection criteria for banking include:

- Changes in dominant strains in regions with the strongest trading links
- Available strains for banking and the coverage they provide

Having considered these factors, New Zealand expects to change 4 of the existing 9 strains in its bank. Further details of this presentation are provided in Appendix 17.

**OIE Asia Pacific**

Dr Itsuo Shimohira, Regional Representative of the OIE Asia Pacific, presented the major activities of OIE Asia Pacific. The OIE Regional Representation for Asia and the Pacific (OIE Asia Pacific) has put priorities on regional activities on animal health improvement, strengthening veterinary services, compliance with international standards for animal health, capacity building of veterinary services for animal health including legislation, diagnosis and surveillance and regional alliance through organization of meetings, seminars, hands-on workshops, expert visits and others.

In 2009, regional meetings were held for regional information and communication activities (2nd Regional Workshop on Communication in Singapore), transboundary animal disease control through the 3rd Regional Steering Committee Meeting on GF-TADs in Tokyo, Japan, together with Sub-Regional Meetings in Kathmandu, Nepal and Nadi, Fiji, as well as for Brucellosis through a meeting in Khon Khaen, Thailand.

Some of the outcomes of the workshops were effective on strengthening FMD control in the region through capacity building of the laboratories as well as the information networks.

OIE Asia Pacific will continue working closely with its partners including international organizations such as FAO, WHO, WTO and regional organizations such as ASEAN, SAARC, SPC and NACA, together with other stakeholders including donor governments and agencies.

The details of this presentation are provided in Appendix 18.

**FAO**

Dr Carolyn Benigno from FAO RAP reported on the plan of work directions for 2010-2011. The Regional Priority Framework (RPF) translates the FAO Global Strategic Framework into a framework that takes into account Asia-Pacific regional realities, issues and challenges. In synergy with the RPF, FAO aims to enhance understanding on the occurrence of TADs and other EIDs in Asia that would result to strengthened management of animal health risks and better response to the control of the priority TADs and other EIDs in the region. Specific activities related to FMD include the study on the FMD carrier role of the Asian Swamp Buffalo. Other specific activities include the establishment of national and regional epidemiology and laboratory networks, technical briefs for policy development, private public partnership study, technical advice to countries on the field, and backstopping support to countries. Further details of this are provided in Appendix 19.

**7. REPORTS FROM COLLABORATORS AND INTERNATIONAL ORGANISATIONS**

**CSIRO Australian Animal Health Laboratory (AAHL)**

Dr Chris Morrissy presented a progress report from AAHL. The FMD AAHL/DAH/CARD (AusAID) Project (072/04VIE) on Development of an Improved Capability in support of National Biosecurity for the Surveillance and Control of Foot & Mouth Disease in Cattle and Pigs was completed in 2009. The project carried out capacity building in the DAH laboratories and in surveillance. The Vietnam laboratories (RAHO 6, NCVD RAHO 4 & 7) have improved diagnostic capability for FMD Diagnosis for VI, sequencing/genotyping and in characterisation of FMD isolates, allowing DAH analyse the origin of FMD outbreaks. The project also carried out serosurveillance for vaccination efficacy and post-
vaccination surveillance (using LP ELISA for O, A22, A Malaysia, Asia 1 and the AAHL 3ABC C-ELISA). Over
the project from 2005 to 2009 the vaccination coverage had risen to >90% with the vaccination response for
cattle 68% in 2008 on small holder farms, up from 29% in 2005. The project found the positive vaccination
response dropped to 30% six months post-vaccination. Commercial cattle farms were able to achieve 90% vaccination response indicating smallholder farms could still improve coverage.

The vaccination response in pigs on small holder farms was poor with vaccination response of 4 to 18%,
indicating vaccination of pigs was not working. A comparison with commercial farms showed commercial farms
were achieving 70% vaccination response indicating the poor response in pigs was not due to the quality of the
vaccine but vaccination protocols. The prevalence of infection with FMD ranged between 10 and 30% using the
AAHL NS ELISA.

Sequencing/Genotyping of more than 120 FMD isolates from 2005/2009 showed there were three serotypes
present in Vietnam, three topotypes of serotype O (Cathay, ME-SA (PanAsia) & SEA (Myanmar 98), serotype A
(Thailand/Malaysia 97 (in 2006), EU667 457 FMD A Laos (in 2009) and serotype Asia 1 (Jiangsu-China-2005
(Nth & Centre), Myanmar 98 (Centre)). FMD serotype O in pigs is mainly Cathay & SEA and in cattle mainly
SEA. The surveillance confirmed two sources of Asia 1 virus incursions into Vietnam.

As a result of the project, RAHO – 6 has stronger epidemiology group leading to improved data collection
protocols, data and investigations of FMD outbreaks and vaccine response. This group identified what needed to
be improved for better surveillance:

- To keep farmers & Sub-DAH engaged in sero-surveillance the laboratory results need to be returned
  quickly
- There is a need for better identification of animals for post-vaccination serosurveillance to ensure
  vaccinated animals and surveyed, especially in pigs
- Budget is needed for surveillance for resources needed

The project has helped lead to improved FMD control in South Vietnam highlighted by the low number of
outbreaks in South Vietnam in 2009 and 2010 due to the presence in the field focusing on improved vaccination
and control of FMD.

CSIRO AAHL will continue to support the region for the key TADs (FMD, AI, CSF, PRRS) and maintain the
collaborations with SEAFMD, GF-TADs, FAO, OIE, OFFLU, DAFF, USDA and other key regional supporters.

Further details of this presentation are provided in Appendix 20.

European Commission

Dr Alain Vandersmissen of the European Commission informed the meeting on four points of actuality: (i) the
signature in December 2009 of the contribution agreements with OIE, FAO and WHO, and the immediate start
of the regional programme on Highly Pathogenic Emerging and Re-emerging Diseases in Asia (EUR 20 million
over 4 years); he invited all member countries to attend the regional launching event that will be announced
soon; (ii) the major consequences of the signature of the Lisbon Treaty on the European Union, in particular the
appointment of an EU High Representative for Foreign Affairs and Security, the creation of a new European
External Action Service and the transformation of the Delegations of the European Commission in full EU
Delegations; (iii) the next International Ministerial Conference on Animal and Pandemic Influenza, to be held in
Hanoi, Vietnam between 19 (technical session) and 21 April 2010. He indicated that the conference agenda
would be very much forward looking and well-balanced between animal and human health; he strongly
encouraged member countries to attend at ministerial level and confirmed the financial support of the European
Commission to Asian participants. Finally (iv) Dr Vandersmissen outlined the main conclusions of the EU-
funded independent Outcome and Impact Evaluation of the Global Response to Avian Influenza and shared the
draft executive summary of the study, indicating that the full report would be presented and distributed at the
occasion of IMCAPI Hanoi 2010. Further details of this presentation are provided in Appendix 21.

Ministry of Agriculture, PR China

Dr Hong Yin from the National Reference Laboratory, Lanzhou Veterinary Research Institute of CAAS,
presented the situation of FMD in China. In 2009, there were 15 outbreaks of FMD in China, and totally 2,114
animals were affected and 5486 animals were destroyed. There were 8 outbreaks caused by FMD type Asia 1
and in each outbreak cattle were affected, swine were affected in three ones, sheep were reported only in one
outbreak. In 2009, there were 7 outbreaks of FMD type A. For the first three outbreaks, only dairy cattle were
infected. As of late, it was found that pigs and other cattle were affected. Sequence analysis of VP1 of all isolates of FMDV type A from different places suggested that only one strain is prevalent in China since the first outbreak in Wuhan Hubei in January 2009, and similarity among isolates from different places is 96.2-100%. Comparison of VP1 sequence of Type A in the world indicated that it was similar to the strain isolated in Thailand (1987), Malaysia (1996), Laos (2003), Cambodia (2006), Vietnam (2009), and recently South Korea (2010).

In 2010, 2 outbreaks of FMD A and 2 FMD O were reported, 1,594 animals were affected and 10,102 animals were destroyed. On 22 February 2010, FMD in swine were reported in Guangzhou City, Guangdong Province. The disease was diagnosed to be FMD type O by the National FMD Reference Laboratory (NRLFMD). Totally, 1,474 cases were reported. All these sick animals and 8,382 susceptible animals were destroyed. No further cases have been reported. On 4 March, another case was reported in Shenzhen city, 69 pigs showed clinical symptoms and were confirmed by NRLFMD to be FMD type O, and 1,108 pigs were culled.

Further details of this presentation are provided in Appendix 22.

Japan – MAFF

Dr Minoru Yamamoto, Director of the International Animal Health Affairs Office presented the report for Japan Ministry of Agriculture, Forestry and Fisheries. Dr Yamamoto described the outbreaks of FMD in Japan during the 2000, including details of the surveillance conducted after the outbreak and the epidemiological investigation of the outbreak. It was explained that the most probable source of the virus was imported wheat straw that was used as animal feed. He explained how, in response to this identified risk, the import regulation was strengthened to include obligatory heat processing of straw imported from infected countries. Information was also provided on the FMD vaccine stock held by Japan. Serotypes O, A and Asia 1 are held (100,000 doses of each). In addition, inactivated, concentrated and purified antigens of FMD are stored (200,000 doses).

Japan continues to assist Asian countries through the following programmes:

- Prevention and control project of major infectious animal disease to improve diagnostic capacity of veterinary services in Asia and the Pacific
- Prevention and control project of main transboundary diseases animal in Asia and the Pacific
- Strengthening Highly Pathogenic Avian Influenza control in Asia
- JICA Project – Regional cooperation project for animal disease control among Cambodia, Laos, Malaysia, Myanmar, Thailand and Vietnam (ADC Project Phase2)

Further details of this presentation are provided in Appendix 23.

Chinese Taipei

Dr Huang-Lin Kao presented a report from Chinese Taipei. After being recognised by OIE as an FMD free country where vaccination is practiced in 2003, Taiwan began to pursue its ultimate goal – regaining the FMD free status without vaccination. A policy of gradual cessation of vaccination was adopted in year 2007. The policy was aimed at increasing the number of non-vaccinated pigs on each farm gradually until all the animals are naïve to the FMDV. Along with the gradual cessation of vaccination, detection of antibody against FMDV non-structural protein is implemented to monitor the FMDV activity. The FMD eradication program had gone smoothly until 2009 when 8 sporadic outbreaks were recorded in 2009.

Beginning with several non-vaccinated pigs in each farm in April 2007, 90% of the animals in the country were non-vaccinated by June 2009. In February 2009, when the first outbreak since 2002 was found, Chinese Taipei believed that it is inevitable to find a trace of infection toward the final stage of an eradication program. However, the following increase of NSP positive rate worried the country. After outbreaks being confirmed in April, May and July, the request for re-evaluation of the FMD eradication program had been raised.

Several meetings with the experts, researchers, industry representatives and colleagues from county Livestock Disease Control Centers had been called to discuss the direction of the eradication programme. Considering the effects of destroying a large number of animals, humanity issues, and the impact on the environment from disposal of the remains and so forth, it was decided to resume the compulsory blanket revaccination from August 2009, to enhance the immunity of pigs and contain the infections. Biosecurity in the farms was strengthened.
Serotype O FMDV has been identified by the national laboratory, Animal Health Research Institute, as the virus responsible for these outbreaks. The institute also confirmed using nucleotide sequencing that the virus is closely related to that identified in 1997.

Up to now, the vaccination coverage is estimated over 80%. The spreading of the disease had been brought under control. No further outbreak was found until February 2010. In the recent outbreak, six pigs, which had been previously shipped to Penghu Island for slaughter from Taiwan Island, were found with vesicular lesions in a detention pen of the slaughterhouse. The incident was reported by the prefecture animal disease control competent authority and the sick pigs were immediately destroyed on 12 February 2010 after sampling. Enforced biosecurity measures including movement control, cleaning and disinfection have been implemented. Tracing back to the farms of origin, blood samples were collected from the animals on farm. Neither antibody against NSP nor the virus has been found. The animals on these farms were healthy. It is suspected that the pigs could be infected in the journey to Penghu Island.

The annual vaccination will be continued until Taiwan regains the status as FMD free with vaccination. The strategy to pursue the status of FMD free without vaccination is under development.

**AusAID**

Mr Royce Escolar, Regional Programme Manager of AusAID in Bangkok, reported on the updates from AusAID. The current Pandemics and Emerging Infectious Disease Strategy (2006-2010) is being reviewed and a new strategy (2010-2015 is being developed. AusAID continues to support the SEAFMD Programme and the Programme for Strengthening Veterinary Services (PSVS), both under the OIE Sub-Regional Representation (SRR-SEA) based in Bangkok, Thailand. A study on the ASEAN regional coordination was also supported by AusAID.

This presentation is provided in Appendix 24.

**Singapore**

Singapore maintains its status as an OIE-recognised FMD Free country without vaccination.

**ACIAR**

Dr Chris Hawkins presented the report for ACIAR. ACIAR remains committed to the Region and is seeking to work closely with groups that share goals to maximise effectiveness and decrease duplication. It is essential for in-country partners to be increasingly active in the design and application of projects and their findings. A big challenge to everyone is to keep up the momentum

This presentation is provided in Appendix 25.

**ILRI**

Dr Jeffrey Gilbert presented the activities of the International Livestock Research Institute (ILRI) in South East Asia, the details of which are in Appendix 29. The project entitled Ecosystem Approaches to the Better Management of Zoonotic Emerging Infectious Diseases in the Southeast Asia Region, or EcoZEID for short, is linking, working with, and building capacity in multi-disciplinary research groups in six pilot countries: Cambodia, Indonesia, Laos, Thailand, Viet Nam and China (Yunnan Province). ILRI is coordinating the set of pilot research projects in these countries, facilitating learning across the projects, and helping translate the knowledge gained into feasible policies and actions. Running until 2013, it aims to increase the knowledge, skills and capacity of research and infectious disease control personnel in Southeast Asia to understand the risks and impacts of Emerging Infectious Diseases and how feasible options can best be implemented and adapted through the ‘Learning by Doing’ approach.

To complement existing projects in the SE Asia Region on emerging infectious diseases, EcoZEID may support research into endemic or neglected, as well as emerging zoonoses if the former are deemed high-priority issues by national decision-makers and local communities. This presentation is provided in Appendix 26.
Dr Van der Meer of ADB reported that ADB is looking at private trade impacts on disease. There will also be a follow up with investment in capacity building in surveillance, diagnostics and testing, and reporting. Current projects are in Cambodia, Laos and Vietnam.

8. **DISEASE SURVEILLANCE, DIAGNOSIS, REPORTING AND CONTROL (SEAFMD COMPONENT 4)**

i) **Country Reports**

No comments from member countries.

ii) **Development of the SEAFMD Toolkit**

Dr Ronello Abila made a presentation on the development of the SEAFMD toolkit. *Roadmap Tools* intends to collate and share the knowledge of those involved in the SEAFMD Campaign and with experience of each of the tools in operation. The idea is to bring local experience and knowledge to bear on the *Roadmap Tools*. *SEAFMD Roadmap Tools* is designed to complement and vitalise the body of knowledge found in the scientific literature in textbooks and journals. *SEAFMD Roadmap Tools* will assist veterinarians and animal health workers for the control of FMD and other transboundary and emerging infectious diseases.

*Roadmap Tools* will focus on factors that may influence the effective implementation of the package of tools and have an impact on the stated objectives of the SEAFMD Campaign. The ambition is to introduce contemporary business practices such as risk and quality management into the culture and processes of the SEAFMD Campaign, thus enabling continuous improvement in decision-making and continuous improvement in performance. *Roadmap Tools* reinforces the assessment that elimination of FMD is biologically feasible and evidence-based. The benefits are the removal of a critical blockage to development in the livestock sector, a tangible contribution to the alleviation of poverty and a public good legacy in the form of effective veterinary services.

A combination of a risk-based approach and the use of “tools” demonstrated as practicable and effective, is important for mobilising political and public support. The combination will open the tools to improvement based on experience and adapt them to changing circumstances. In doing so, the certainty of success of the SEAFMD Campaign will be enhanced and there is further reassurance that investment in the elimination of FMD represents a wise allocation of resources.

A Concept diagram showing how the SEAFMD principles for the control and elimination of FMD harmonise and operate against the disease was presented. This diagram as well as other details of this presentation is provided in Appendix XIV and Appendix 27.

iii) **Progress of FMD Regional Reference Laboratory and SEAFMD Laboratory Network (LabNet)**

Dr Wilai Linchongsuongkoch presented the progress of the FMD Regional Reference Laboratory and Laboratory Network (LabNet) for 2009. Further details on the report of the RRL are provided in Appendix 28. The designation of RRL as a New OIE Reference Laboratory for FMD has been endorsed by the General Session on May 2009.

In 2009, the RRL Pakchong received the following samples: Laos (22), Myanmar (4), Vietnam (47) and Thailand (65) In early 2010, samples were received from Cambodia (3) and Thailand (11). The diagnostic results of samples from those countries were serotypes O and A. The vaccine matching test (r-value) of FMD field isolate viruses indicated that the r-values of type O was greater than 0.4 with O189/87 (Thai vaccine strain) and for type A, r-value is greater than 0.4 with A118/87 (Thai vaccine strain). The molecular epidemiological analysis of FMD that caused outbreaks in 2009 indicated that the phylogenetic tree of type O from Myanmar, Laos and Thailand were clustered in SEA topotype, while the type O from Vietnam were clustered in CATHAY topotype. For type A, the phylogenetic tree of viruses from Vietnam and Thailand were clustered in Asia topotype.
The progress of the SEAFMD Laboratory Network meeting in 2009 was presented. The agenda paper on the progress of the SEAFMD LabNet is provided in Appendix XXIII. A total of 16 FMD laboratories in the region and within Thailand have participated in the inter-laboratory comparison testing program organized by the RRL and OIE-RCU from October 2009 to February 2010. The result of this program demonstrated that most of the laboratories developed their quality assurance system in diagnostic assay. All reports have already been distributed to participating laboratories for use as a guideline in solving or developing their laboratory’s capacity and assay performances.

iv) Progress with the SEAFMD Epidemiology Network (EpiNet) and Development of a Training Module for Outbreak Investigation

Dr Alexandre Bouchot, Technical Adviser to the SEAFMD Campaign, presented the work done by the Epidemiology Network (EpiNet) and some derived recommendations, notably based on the work done during the 2nd SEAFMD Epidemiology Network (EpiNet) Meeting that was held in February 2010 in the Philippines.

Regarding the activities conducted during the year, it was explained that some training in outbreak investigation and management (OIM) have been conducted in Laos and Cambodia as well as a Trainer’s Training on OIM in the Philippines, incorporating GIS. The OIM manual has been continuously revised and is well appreciated by the trainees. It has been or is currently translated into Myanmar, Lao and Khmer languages and partner organizations and some experts have requested for copies.

Regarding the recommendations, they are divided into two main domains which are how to improve FMD reporting and how to learn more from the past. Regarding improvement of FMD reporting, the emphasis is put on the necessity to use the same language (notably outbreak definition, “clean” data) in the whole region to continue training on outbreak investigation, to reduce the delay between outbreak and its notification into ARAHIS, to improve links between LabNet and EpiNet and to develop molecular information availability. Moreover some cheap and quick tools are required to analyse and assess on a regular basis the sensitivity and the specificity of the surveillance system by countries / zones. That would authorize to get information on the real prevalence level of FMD and to monitor the reporting improvements from a year to another toward the reporting objective that maybe required to be revised (as there is maybe no more point to report absolutely all the outbreaks in ARAHIS; only the meaningful ones should be reported).

Regarding lessons learned from the past, validation and in-depth analysis of past FMD data is required. Regional experiences in eradicating FMD have to be documented and shared. Some detailed outbreak investigations shall be conducted and transformed into published case studies. This would suppose to improve the analysis and presentation skills of a core team in each country. Regarding the OIM trainings, training of trainers that will get real ownership of the training methodology and will be able to transmit the knowledge and skills in the own language of the trainees seem the way forward.

The activities that will be undertaken for the year to come comprise developing links with the regional Field Epidemiology Training Programme for Veterinarian (FETPV) (through case studies writing notably) developing an interactive OIM CD using an e-learning software and implementing Training of Trainers courses. As mapping is an excellent communication tool towards stakeholders and policy makers, some training of epidemiologists on quality of data and their mapping will be conducted (the EpiNet will draft some standard procedures). In order to improve the reporting and neighbors information delay, the implementation of an email subscription service will be explored. Some work on the need and how to display toptype and molecular geolocalized information will be conducted. Regarding the surveillance system assessment, the on-going studies on capture-recapture methodologies / surveillance will be followed with interest.

Further details of this presentation are provided in Appendix 29.

v) Vaccination strategy in South-East Asia

Dr John Stratton, PSVS Programme Manager of the OIE SRR in South East Asia, talked about the FMD vaccination strategy for South East Asia. The SEAFMD 2020 document seeks to achieve freedom with vaccination by the year 2020. It is planned that the 2020 document will be reviewed in 2010, taking into account experiences learned since the establishment of the SEAFMD Program, to improve future planning. Vaccination is a key component of the 2020 Strategy and therefore needs close examination to see if improvements and changes to future direction are merited.
This document has been in development since mid 2009. Prior to the last SEAFMD National Coordinators meeting in Bangkok (mid August 2009), a FMD vaccination questionnaire was answered by members relating to their country’s current FMD vaccination use, vaccination policies and lessons learnt. Based on the questionnaire responses, a preliminary outline of the Strategy (mostly in dot points) was prepared for the meeting which was presented in association with a collation of relevant country responses to the questionnaire.

This outline was workshopped at the meeting, with members providing further comments and ideas under each aspect. As recommendations, it was agreed that the Strategy would be further refined following workshops and discussions at both the SEAFMD Lower (November 2009) and Upper (January 2010) Mekong Working Group meetings, with a final draft to be considered at the OIE Sub-Commission meeting in March 2010. Changes were made from the original version presented at LMWG and arising from the workshopping undertaken there. In terms of formatting, the Strategy has since been logically structured into: 1. Purpose; 2. General Considerations; 3. Policy and Strategic Issues; 4. Technical Issues; and 5. Practical Aspects and Delivery.

More inputs were incorporated from a workshopping session on vaccination at UMWG in Hanoi, Vietnam on 20 January 2010. Some expert inputs were also received. The draft has been further modified taking into account all comments received, for consideration at the SEAFMD Sub-Commission meeting.

More specific planning at national level is required to build proposals and assess capacities for further activity. This aligns neatly with a closer focus on coordinated field activity by SEAFMD, as relevant to its zoning approach.

The full presentation given by Dr Stratton is provided in Appendix XV and Appendix 30.

Discussion
Key issues raised in discussion included:

- A question was raised as to whether small ruminants would be included in the vaccination strategy, given that studies in Central Myanmar have shown the level of FMD exposure in small ruminants is significant. Dr Stratton suggested that further study was required into the impact of vaccinating small ruminants and the response of this species to vaccination.
- Dr Gardner Murray stated that the vaccination strategy is intended to provide a framework approach so that countries can then take the document and customize it to suit their individual needs and priorities. It should therefore guide the member countries in implementing vaccination campaigns in their respective countries. The use of the strategy should include obtaining of funds from the government and donors to support vaccine policy and delivery.
- The importance of the strategy document was noted and the importance of finalizing the strategy emphasized. Delegates were asked to provide comments on the strategy within four weeks of the meeting.
- Dr Ben Madin raised concerns about the need for a regionally recognised livestock identification system. The importance of livestock identification was noted particularly for traders who may be able to gain confidence of vaccination in individual animals. He recommended that one of the annexes to the strategy should be a regional framework on animal identification that would provide confidence to traders.
- Dr John Edwards noted the importance of Central Myanmar in the context of the regional program. This area represents a major source of livestock to areas throughout the region. Therefore, an investment in FMD control in this area would likely have major impacts on the state of FMD in the region.
- Concerns were raised regarding ability to deliver vaccines at the village level and maintenance of the cold chain. It was noted that cost–benefit analysis of vaccination at the village level should be conducted. Concerns about the potential for iatrogenic transmission of other diseases through unhygienic vaccination practices were raised.
- Dr John Edwards asked whether objectives of the SEAFMD and partner organizations could be aligned more effectively to ensure that work by partner organizations feed into the SEAFMD Campaign effectively. Alain Vandersmissen described the multi-sectoral organization around the H5N1 as unprecedented. He described that positive impacts of this organisation were realised in the response to H1N1. He stated that it is important now to ensure that this organization is sustainable, that it becomes an institutionalized and permanent organisation.
- The assistance of the industry groups in development of the vaccination strategy was requested and it was agreed that these industry groups would make contributions to the development of the strategy document.
9. REGIONAL RESEARCH AND TECHNOLOGY TRANSFER (SEAFMD COMPONENT 6)

i) Country Reports

No comment from member countries.

ii) ACIAR Project on Understanding Animal Movement

Dr Jim Kerr presented the ACIAR project on animal movement, the details of which are in Appendix 31. The project, entitled “Understanding Livestock Movement and the Risk of Spread of Transboundary Animal Diseases” runs from May 2007 to October 2011 and covers Cambodia (Takeo and Kampong Cham provinces) Laos (Xieng Khouang and Vientiane provinces). The project aims to develop an understanding of livestock movements within and across the borders of Cambodia and Laos, including movement drivers, trading practices, trading networks and trade routes. The information gathered will be used to create a computer model capable of predicting livestock movements, based on indicator data such as market prices. It is hoped that when disease surveillance information is added to the model, risk of disease spread can be predicted, allowing preventative measures to be attempted in high risk animal populations. The project also plans to investigate non-regulatory strategies to reduce the disease risk associated with livestock movements in the region.

The Project has 18 months to run and is willing to share resources to interested parties.

iii) Epidemiological and Risk-Based Studies of FMD in the MTM Zone

Dr Polly Cocks presented details of epidemiological studies conducted in the MTM Zone. These studies consisted of a retrospective analysis of FMD, a critical analysis of data sources and animal movement and risk pathway analysis. The limitations of the data were described, noting particularly the level of under-reporting.

The value of sequencing data was highlighted, emphasizing the need to understand more about the different strains occurring in the MTM Zones. Discussion on surveillance in the MTM Zone suggested that the value of serological surveys conducted to estimate prevalence may not provide sufficient additional information to justify the resources required. The value of participatory approaches to surveillance conducted in Myanmar was noted, and a recommendation made to consider developing similar approaches in Malaysia and Thailand.

The role of different species in the epidemiology of FMD was discussed, noting specifically the lack of understanding of the role of small ruminants. Dr Cocks made several recommendations to: investigate shortfalls in outbreak reporting; explore and develop participatory approaches to disease surveillance; increase investigation of outbreaks; increase number of samples submitted for sequencing and conduct more research on other species (sheep and goats).

A brief outline was also included on the results of trade pathways studies in the MTM Zone and development of a risk pathways model based on the trade related movement of livestock previously identified.

The full presentation given by Dr Cocks is provided in Appendix 32.

iv) Progress on the Study of FMDV Persistent Infection in Buffaloes

Dr Blesilda Verin made a presentation on her on-going PhD study with Murdoch University. The study involves a cross sectional study on 4 to 8 months FMD post-infection and a longitudinal study with two additional samplings six months apart on unvaccinated swamp buffalo (Bubalus bubalis) in Laos and Myanmar. The aims of the study are to assess the prevalence of FMDV carriers is Asian Swamp buffalos, to determine the persistence of FMDV in buffaloes, to determine the possibility of transmission of FMDV from carrier to naïve animals, to validate the different NSP tests on buffalo samples and to validate salivary IgA assay for the detection of carrier for swamp buffalo. All field sample collections and laboratory tests have been completed except PCR and sequencing analysis which is on going. Further details of this presentation are provided in Appendix 33.

v) FMD Research Activities of AAHL-Geelong

Dr Wilna Vosloo, Research Team Leader, presented the FMD research activities of AAHL-Geelong. Foot and mouth disease (FMD) continues to be one of the greatest threats to the economy and viability of the livestock
The project will involve offshore testing of the effectiveness of several vaccine strains currently available and included in international vaccine banks against those high-risk virus isolates circulating in SEA through vaccination and live virus challenge. In addition, control animals will be inoculated with these live FMD viruses to better understand their pathogenesis and provide information that could feed into models to assist decisions regarding disease control. These activities will also enable the further development and validation of methods to rapidly and reliably detect and identify FMD virus in outbreaks, and to differentiate animals infected with field virus from those that are vaccinated (‘DIVA’ tests). The reagents generated in the course of these studies will be available to partners for inclusion in their diagnostic and research activities. The project will focus on in depth molecular characterization of FMD viruses from SEA to continually assess the evolution of novel viruses as well as those collected from the inoculation experiments to look for quasispecies generation during infection and the carrier state.

Since AAHL cannot work with live FMD virus, it is reliant on collaboration with partners in SEA for live virus work, and it is envisaged that the funding provided by this project will assist partners financially whilst providing AAHL the opportunity to send its staff to work with the virus in those laboratories.

Further details of this presentation are provided in Appendix 34.

vi) Current FMD research work on FMD in Japan

Dr Katsuhiko Fukai presented the current research works on FMD in Japan, the details of which are provided in Appendix 35.

It was attempted to establish new ELISA systems using multi and single-serotype-reactive MAbs. Several MAbs were raised against FMDV O/JPN/2000, A11, TAI 1/60 and Asia1 Shamir strains. Their character was analyzed by virus neutralization test and ELISA. MAbs reacted multi- (O, A, C and Asia1) and single- (O, A and Asia1, respectively) serotypes were obtained. According to the results of the MAb characterization, various combinations of the MAbs were examined for the ELISA systems. The best results were obtained when 1H5 was used as the trapping antibody and 71F2, 70C4, 16C6 and 7C2 were used as the peroxidase-labeled detecting antibodies. The ELISA systems showed high sensitivity. And the OD values of negative samples were very low. Furthermore, they could coat only one MAb as the antigen-trapping antibody and use peroxidase-labeled MAbs as detecting antibodies. Therefore, the ELISA systems are rapid and useful methods for FMDV detection. It is also attempted to perform IFA tests using the multi- and single-serotype-reactive MAbs for detecting rapidly FMDV and for identifying the serotype. They could detect FMDV more rapidly before the CPE appeared.

Pirazinecarboxamide derivative T-1105 shows inhibition activity to FMDV growth in vitro experiments. It was attempted to evaluate the antiviral effect by using in vivo experiments. T-1105 was mixed with feed and it was administered orally to pigs with the feed at 1 hour before virus inoculation. Then each FMDV strain was inoculated intradermally to pigs. T-1105 was administered at twice a day for 7 days. In the animal experiment using FMDV O/JPN/2000 strain, the administered pigs did not show any clinical sign and virus wasn’t detected from the pigs during the experiment period. In the animal experiment using FMDV O/Taiwan/97 strain, 2 of 4 administered pigs showed the formation of vesicle only at the virus inoculated site at 2 days post-virus inoculation. The vesicle ruptured at 5 days. Maximum 10^6 PFU/mL of virus was detected between 1 and 7 days post-virus inoculation in the non-administered pigs. According to the results, the clinical signs and viremia reduced significantly in the T-1105-administered pigs. Therefore, T-1105 is a useful tool for the control of FMD in pigs. It is possible to prevent pigs from getting infected and to reduce the local spread of the disease.

vii) Progress on FMD vaccine development

Dr Philippe Dubourget, FMD Programme Director of Merial, presented Merial’s experience of technology transfer and its potential adaptation to SEAFMD countries, the details of which are provided in Appendix 39.
The availability, affordability and fitness-for-purpose of vaccines in all countries engaged in a comprehensive control program are pivotal. Manufacturers play a key role in developing appropriate vaccines and production capabilities to ensure adequate ability to supply ongoing needs. Manufacturers can play a significant role in a number of fields related to economical improvement of appropriate FMD vaccines, and staged technology transfer, based on localization of several industrial steps of the vaccine production process, has historically been a proven strategy. Merial’s current FMD supply efforts in Vietnam is a Regional example of how large scale highly specialized manufacturing and technical resources has been paired with local delivery of non FMD specific down stream manufacturing processes to produce final product. Ultimately this approach can help deliver local ownership and increased flexibility in securing FMD vaccines in a timely and cost effective manner to meet local demands (strain composition, vial size, labeling requirements, small neighboring country need supply, etc.). Further details of this presentation are provided in Appendix 36.

10. PUBLIC AWARENESS AND COMMUNICATIONS (SEAFMD COMPONENT 3)

i) Country Reports

No comment from member countries.

ii) SEAFMD Communication Programme

Dr Sharie Aviso of the SEAFMD RCU presented the SEAFMD communication programme. At present, the RCU has no Communication Officer thus the staff are also in charge of implementing communication activities and experts hired as necessary. In 2009, the SEAFMD RCU has contributed to the development of the PSVS Animal Health Communication Strategy for SEA; distributed the SEAFMD Newsletter and E-news and has started upgrading the website. For the year 2010, the National FMD Task Force of the Philippines will develop a field communication manual for FMD control. The SEAFMD RCU will also launch the “SEAFMD Warrior,” a recognition system for individuals or groups that did exemplary actions to control FMD. A medal will be awarded to chosen individuals or groups and will be included in a “SEAFMD Warrior” journal to be published. For more information see Appendix 37.

iii) Animal Health Communication Strategy for South East Asia

The Strategy for South East Asian animal health communications was presented by Dr John Stratton, the details of which are provided in Appendix 38. Background of the PSVS and the schedule of development of the communication strategy at both sub-regional and regional levels were summarised, culminating in adoption by the OIE Regional Commission for Asia and Pacific in Shanghai in November 2009. Dr Stratton summarised the main components of the animal health communication strategy and noted that countries were in the process of developing individual action plans using it as a framework, which had strong relevance to FMD communication.

11. POLICY, LEGISLATION AND STANDARDS TO SUPPORT DISEASE CONTROL AND ZONE ESTABLISHMENT (SEAFMD COMPONENT 5)

i) Country Reports

No comment from Member Countries.

ii) Update on Standards (OIE Code and Manual) in Relation to FMD

Dr Mara Gonzalez Ortiz, Deputy Head of the OIE Regional Activities Department reported on the update on the OIE standards in relation to FMD.

The two OIE trade standards, the Terrestrial Animal Health Code and Aquatic Animal Health Code (referred to hereafter as the Codes), aim to assure the sanitary safety of international trade in terrestrial animals (mammals, birds and bees) and aquatic animals (fish, molluscs and crustaceans), and their products. This assurance is achieved through the detailing of health measures to be used by the veterinary services or other competent authorities of importing and exporting countries in establishing health regulations for the safe importation of animals and animal products. Such measures aim to avoid the transfer of agents pathogenic for animals and/or humans, without the imposition of unjustified trade restrictions.
The proposals for adoption in the 78th General Session in May were presented which include the changing of the Central Bureau into Headquarters and others. The entire article on FMD free compartment (Article 8.5.5.bis) is proposed for adoption (with two additions for comments) and ten relevant articles were modified accordingly adding the “compartment concept.” There are no relevant changes for FMD in the OIE Terrestrial Manual.

The different recommendations for the OIE/FAO Global Conference on Foot and Mouth Disease in Paraguay (24-26 June 2009) and the actions taken in response to such recommendations were presented as well.

Further detail of this presentation is provided in Appendix 39.

**iii) SEAFMD Progressive Zoning (MTM, Upper Mekong and Lower Mekong)**

Dr Ronello Abila, SEAFMD Regional Coordinator, reported on the SEAFMD progressive zoning activities, the details of which are in Appendix 40. The different zones more or less maintain its status except for the relative decrease of outbreaks in Vietnam Lower Mekong zone and incursions of FMD in the Upper Mekong control zones were seen in the last three years. The different recommendations were presented which reflect the need for livestock movement studies, thorough outbreak investigations and evaluation of zoning initiatives. The priorities for 2010 will be the conduct of in-country meetings to get a better situation analysis on how to progress zoning initiatives, review of the surveillance strategy, conduct of pilot vaccination in critical points / FMD hotspots, and review of the zoning strategic plans in line with the review of the SEAFMD 2020 roadmap.

**12. PROGRAMME MANAGEMENT, RESOURCES AND FUNDING (SEAFMD COMPONENT 2)**

**i) Review on the Economic Impact Studies done on FMD in South East Asian Countries**

Dr Carolyn Benigno of FAO RAP presented the review on the economic impact studies done on FMD in South East Asian countries, the details of which are in Appendix 41. The review was done to review the extent of economic impact studies done on FMD in Southeast Asia and to develop an appreciation of the use of socio-economic impact studies in engaging stakeholder support. Studies done on cost of disease and cost of disease control interventions for trade were presented. The need to develop a framework for an economic impact study to guide the countries in determining objectives and requirements needed for a study was raised by Dr Benigno and suggested that the following points be considered:

- Differences in meeting needs at the farm level and at the national level
- Conduct of economic assessments on FMD affected smallholder enterprises will assist in determining the type of assistance veterinary services should be able to extend when future outbreaks occur
- Conduct of an economic assessment at the national level will lay the foundations for investing on a disease control program
- To ensure that control scenarios evaluated are as realistic as possible, a sound epidemiological base for the economic impact assessment is essential
- Data requirements could be a challenge. In addition to epidemiological data, a database on costs of disease control interventions could prove useful
- Private partnerships must be forged to allow for sharing of resources in the control of disease

**ii) Costs of FMD Eradication in the Philippines**

Dr Reildrin Morales, National Coordinator of the Philippines, discussed the cost of FMD eradication in the Philippines, the details of which are provided in Appendix 42.

In a country where livestock accounts to 27.8% share to the total agriculture economy which in turn contributes between 16-18% of the national gross domestic product, disease such as FMD can have very serious implications. The swine producing sector which is composed of 71% small holders that spread across the entire country accounting to 46% of the total livestock commodity, is the most affected as the virus strain present in the country has a natural leniency to pigs.

In a period covering 14 years, the campaign to eradicate the disease amounted to a total of around Php 500M (USD 12 million at current prices), which was basically used to support activities on i) disease monitoring and surveillance ii) animal movement management iii) public awareness and iv) vaccination. This amount coming from both donor and the government is seen as well justified, considering the potential impact of disease outbreak as demonstrated in the 1995 outbreaks where an estimated Php 2B (USD 45 million current prices), as
well as the incremental benefits associated with the eradication. Accordingly, numerous indirect benefits also associated with the disease eradication such as value added to veterinary services which were capacitated in the course of the campaign and to the allied industries further justify the cost of eradicating the disease.

### iii) Review of SEAFMD 2020 Roadmap

Dr Ronello Abila presented the review of the SEAFMD 2020 Roadmap, the details of which are in Appendix XVI and Appendix 43. The SEAFMD 2020 Roadmap was developed to provide a long-term strategic framework to guide members in achieving FMD freedom with vaccination in South East Asia by year 2020. This Roadmap has been drawn up based on the significant progress of the South East Asia Foot and Mouth Disease (SEAFMD) campaign that was established in 1997. The SEAFMD 2020 Roadmap has been used as a model for the development of similar strategic documents for other transboundary diseases. Globally, SEAFMD has been recognized as a good model for sub-regional control of FMD in other parts of the world. During the Global Conference for FMD Control held in Paraguay this June 2009, the SEAFMD was cited in several presentations and in the final recommendations as a good model for sub-regional and regional control of FMD.

As indicated in the SEAFMD 2020 document released in 2007, the roadmap is a living document, subject to review and revision, in the light of changes along the way. Many changes have transpired in the past three years since its implementation. Significant amount of scientific and epidemiological information on the status and behavior of FMD in the region have been acquired the past years. More detailed information on the animal movement pathways and other main risk factors involved in the transboundary spread of FMD have also been acquired.

The recent changes in the political, economic and trade landscape have to be considered to enable the implementation of the SEAFMD 2020 roadmap attuned to these changes.

The existing strategy of progressive zoning has to be reviewed in the light of these changes and other approaches such as strategic vaccinations in FMD hotspots, focus interventions in identified critical points along the animal movement pathways, maintenance of FMD free zones, etc. Resources for country implementation are critical hence leveraging for funds from the governments and international development agencies is essential. The role of the private sector, particularly the farmers and traders groups, private veterinary practitioners, and other industry players have to engaged more closely to support the programme.

### 13. INTERNATIONAL COORDINATION ANS SUPPORT (SEAFMD COMPONENT 1)

#### i) Country Reports

No comment from Member Countries.

#### ii) Progress with GF-TADs in Asia and the Pacific

Dr Itsuo Shimohira, Regional Representative of the Regional Representation for Asia and Pacific, talked about the progress with the Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs) in Asia and Pacific. The Sub-Regional Meetings for SAARC and SPC Regions were organized in Kathmandu, Nepal and Nadi, Fiji, respectively on June 2009, to follow up the recommendations of the 2nd Regional Steering Committee of GF-TADs held in Bangkok on July 2007. On the other hand, the Sub-Regional Meeting for ASEAN which had initially been planned in Indonesia in July 2009, was postponed due to the unexpected incidence in Jakarta. It was organised in Jakarta, Indonesia on 7-8 December 2009.

The vision of GF-TADs is to assist countries in the control of TADs by strengthening the capacity of their veterinary services, the Sub-Regional Meetings of GF-TADs discussed the setting up and strengthening of key instruments at the sub-regional level to coordinate in fighting against TADs and promote early warning and early response.

The 3rd Regional Steering Committee Meeting of GF-TADs was convened in Tokyo, Japan on 23-24 July 2009. The Meeting recognised the GF-TADs as a unique coordinating mechanism which is adding the significant value to global and regional approaches to TADs and Emerging Infectious Diseases (EID) control. Several important recommendations have emerged from the meeting which will serve as the guidelines for further improvement of TADs control in the Region.

SEAFMD 16th OIE Sub-Commission Meeting, Vientiane, Laos
Generic and Regional Recommendations and Special issues of the Meeting raised are as follows:

(Generic recommendations)
- To continue addressing cross cutting issues including capacity development: strengthening veterinary services to comply with international standards on quality of veterinary services, good governance and legislation, veterinary education, and improved diagnostic laboratory services.

(Regional recommendations)
- To support the strengthening of diagnostic laboratory services, biosecurity, improved management of animal movement, epidemiology and laboratory networks, information systems and communication.
- To organize the GF-TADs sub-regional meetings and to discuss specific sub-regional issues including socio-economic aspects related to disease control and prevention.

(Special Issues)
- To encourage the OIE PVS Evaluation, PVS Gap Analysis and to update legislations related to animal health in the Region.
- To use the existing disease control mechanism such as the road map for SEAFMD, GREP and veterinary capacity building by PSVS as models, for control of other TADs in the Region.

More information on this presentation is provided in Appendix 44.

iii) ASEAN Report

Mr Suriyan Vichitlekarn, Senior Officer of the ASEAN Secretariat, presented the activities of ASEAN with regard to SEAFMD Component 1 (International Co-ordination and Support). The ASEAN study will provide decision on the Regional Coordination Mechanism (RCM) and transitional arrangement. Policy briefs are also provided that act as reporting tool for AMAF for decision making and follow-up.

The ASEAN Plus Three Cooperation on Agriculture utilizes new framework for strategic areas of cooperation and has included animal health and transboundary animal diseases (TADs).

The presentation of ASEAN is provided in Appendix 45.

Discussion
- A trial proposal can be produced to contribute to progressing the SEAFMD Campaign. Thailand was asked as ASEAN lead country to take into account and utilize this funding facility.

14. MONITORING AND EVALUATION (SEAFMD COMPONENT 8)

i) SEAFMD Work Plan 2010/2011

Dr Ronello Abila presented the SEAFMD work plan for 2010 to 2011 (see Appendix 46). He presented first the meetings to be organised over the next 12 months and other planned activities, including the conduct of the regular meetings (Sub-Commission, Laboratory and Epidemiology Network, National Coordinators) and zonal meetings (Upper Mekong, Lower Mekong, MTM). A SEAFMD Vaccine Workshop is also set to be conducted back to back with the National Coordinators Meeting. The SEAFMD Campaign is also geared towards the conduct of in-country meetings in the zones to involve the Provincial Veterinarians and other relevant staff working in the zones. Other activities set for 2010-2011 focus on the review of the SEAFMD 2020 Roadmap; review and finalization of reports and relevant strategies; enhancing FMD reporting and sample submission; strengthening of the communication activities of both the RCU and member countries; pursuing policy support; maintenance of FMD-free countries and zones and strengthening involvement of stakeholders.

15. CONCURRENT MEETINGS OF DELEGATES AND OBSERVERS

The following sections report on the outcome of the SEAFMD Delegates and Observers meetings. The plenary session was used to discuss and amend the outcomes and recommendations directly and is therefore incorporated into parts 18 (i) and (ii).
i)  SEAFMD Delegates’ Meeting

The SEAFMD delegates meeting included member country representatives from Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand and Vietnam. The meeting was chaired by Dr Gardner Murray. A brief description of the outcomes of the meeting and recommendations are provided below. Dr Ronello Abila presented the results of the meeting (Appendix 47). The agenda of the meeting is provided in Appendix XVII.

Key Issues

Key issues raised included the following:

- Vice-presidents of the OIE SEAFMD Sub-Commission were selected. Dr Prasit Chaitaweesub from Thailand retains his post and Dr Mohd Naheed Mohd bin Hussein from Malaysia will replace Dr Periathamby Loganathan who is currently with FAO.
- Election of new Vice-Presidents will be done in March 2011.
- Priority will be given to in-country meetings on zoning. Sub-regional zoning meetings will be held every two years but will include a one day zoning meeting during annual NC meetings.
  - 2010 – LMWG (Thailand)
  - 2011 – MTM (Malaysia)
  - 2012 – UMWG (Myanmar)
- A joint meeting of the Laboratory and Epidemiology Networks will be held.
- The strategy and next steps for FMD vaccination will be finalized. A vaccination workshop is scheduled in August 2010.
- A project proposal for SEAFMD Phase 4 will be developed for funding.
- ASWGL will provide systems for its members to provide comments to OIE standards development.
- PR China’s application to become a full member of the Sub-Commission is supported.

Recommendations

These recommendations have been incorporated into the main meeting recommendations:

- Recommended to change the name to SEACFMD (Southeast Asia-China FMD) Campaign
- Recommend that Brunei and Singapore join the SEACFMD to complete membership of all ASEAN Member States
- Recommended for the ASWGL meeting to be held before May to ensure issues will be brought by the CVOs in the General Session Meeting

ii)  Observers Meeting

Approximately 60 participants attended the meeting of the SEAFMD Observer Delegates chaired by Dr Bernard Vallat. The agenda of the meeting is attached in Appendix XVIII. The following key 36 recommendations and observations arose from the meeting which mainly reflect the general discussions held in plenary sessions. Recommendations and observations address mainly matters related to membership of SEAFMD; strengthening of veterinary services; priorities for the SEAFMD Campaign especially the vaccination strategy and review of the SEAFMD 2020 document, stronger engagement with ASEAN, continuous funding for the SEAFMD programme; and research priorities.

The recommendations of the Observer Delegates can be found in Appendix XIX.

iii)  Plenary Session to Report Outcomes of the Delegates’ and Observers’ Meetings

The discussions and outcomes of the plenary session are incorporated into the above meeting reports.

16. FIELD TRIP REPORT

On Thursday, 18 March 2010, all delegates attended a field trip to the Bankeun Live Cattle Auction Market and Sweet Corn Processing Factory. The Head of the livestock group explained the operation of the livestock market, which commenced operation on 25 December 2009. The market is a means of helping the farmers and traders in the area as the refuse from the sweet corn factory are used to feed the cattle. The Department of Livestock and Fisheries conducts vaccination programme in the market.

Lunch afterwards was hosted by the SEAFMD RCU in a floating restaurant in the Nam Ngum Hydro Dam.
17. MEETING OF OIE DELEGATES OF SOUTH EAST ASIA (OPEN SESSION)

i) OIE Initiatives

Dr Bernard Vallat, OIE Director General presented the OIE initiatives. The global community is at present facing challenges like increase in global population, increase in animal protein consumption, globalization and emerging and re-emerging animal diseases and zoonoses. Animal health is a key component of food security, food safety and public health thus the following approaches have been adopted in collaboration with other organizations like FAO:

- The Global Public Good concept
- The Good governance concept
- The « One World, One Health » concept
- Horizontal and peace time approach
- OIE solutions

All countries need appropriate legislation and its efficient implementation through appropriate human and financial resources allowing national animal health systems providing for appropriate surveillance, early detection, transparency and notification; rapid response to animal disease outbreaks; biosecurity measures; compensation; vaccination when appropriate; and education and research.

The OIE has capacity building initiatives for bringing veterinary services (VS) in line with international standards:

- Evaluation of compliance of quality standards for Veterinary Services (OIE-PVS Pathway)
- Capacity building programme for New OIE Delegates and OIE National Focal Points
- Reference Laboratories and Collaborating Centres
- Laboratory twinning projects

The use of the OIE Tool for the Evaluation of Performance of Veterinary Services (OIE PVS Tool) is a key element in the OIE PVS Pathway. Following this pathway allows countries to support VS in establishing their current level of performance, identifying gaps and weaknesses in their ability to comply with OIE international standards, and forming a shared vision with stakeholders (including the private sector), with the goal of establishing priorities and securing the investments needed to carry out strategic initiatives. The PVS evaluation is a qualitative evaluation of the performance of VS on 40 critical competencies and is likened to the “diagnosis” step. Of the 175 OIE member countries, 101 have requested for PVS evaluation missions, of which 92 missions have been concluded and 66 with available reports.

The PVS gap analysis involves prioritization of the critical competencies and of related needs and is likened to the “prescription” stage. Forty-nine (49) gap analysis mission requests were already received, of which 19 missions have been done.

The “treatment” stage is composed of veterinary services strategic plan, modernization of legislation, public-private partnerships, country/donors investments/projects, veterinary education and laboratories. This will then be followed by PVS follow-up evaluation missions.

Legislation missions have been done in 9 member countries out of the 23 members that requested.

The OIE global Programme of capacity building of OIE New Delegates and focal points aims to facilitate consistency and harmonization amongst OIE Members in assigning responsibilities to the nominated Focal Points; allow better use of focal points expertise to support OIE Delegates to exercise their rights and to comply with commitments and responsibilities; and better participate in the OIE standard-setting process. OIE has focal points for aquatic animal diseases, wildlife, sanitary information systems, veterinary medicinal products, animal welfare, and food safety.

The function of the OIE Reference Laboratories is to serve as world centres of expertise for OIE official listed diseases; they have particular responsibility for carrying out confirmatory diagnostic tests for these diseases and transmitting the results to the competent authorities of the member countries. OIE Collaborating Centres on the other hand are centres of expertise in a designated sphere of competence relating to the management of a particular issue (e.g. epidemiology, risk analysis, animal welfare or veterinary training) and their expertise in these different fields is placed at the disposal of all countries. Since 2006, a laboratory twinning programme under the auspices of the OIE has been facilitating close cooperation between experts in the North and those in the South, thereby helping to extend still further the OIE’s network of excellence.
The current quality of veterinary education is not acceptable in many countries thus initial and continuous veterinary education is a key tool for global governance. OIE recommends for harmonisation of curriculum, minimum requirements, quality control and recognition procedures, and more involvement of Veterinary Statutory Body. An OIE global conference on veterinary education was conducted on October 2009.

OIE has specific regional programmes composed of the SEAFMD Campaign, Programme on Strengthening Veterinary Services (PSVS), Programme on Highly Pathogenic Emerging and Re-emerging Diseases (HPED), and generic OIE support missions.

Further detail is provided in Appendix 48.

ii) FAO Initiatives

Dr Subhash Morzaria presented the FAO initiatives for transboundary animal diseases (TADs) and emerging infectious diseases (EIDs). The Emergency Centre for Transboundary Animal Disease Operations (ECTAD) is FAO’s corporate centre for the planning and delivery of veterinary assistance to FAO member countries responding to the threat of transboundary animal health crises. The ECTAD-RAP was established in December 2005 in FAORAP, Bangkok.

The ECTAD-Rap’s key activities are:
- HPAI control at country and regional levels
- Regional H1N1 surveillance in South East Asia
- Control of TADs in the Greater Mekong Sub-region (GMS) – Phase II

FAO will also be implementing an FAO component of the Regional Cooperation programme on Highly Pathogenic and Emerging and re-emerging diseases (HPED) in Asia. The other executing agencies are OIE and WHO. The specific objectives of this regional cooperation are to strengthen and empower ASEAN and SAARC in their ability to prevent, control and eradicate HPED, including HPAI; and improve veterinary and public health services and inter-sectoral collaboration on a regional basis. The key activities under this would be the establishment of a Regional Support Unit (RSU) in Bangkok, establishment of a regional epidemiology network, and establishment of a regional laboratory network.

FAO’s full presentation is in Appendix 49.

iii) ASEAN Initiatives

Mr Suriyan Vichitlekarn presented the ASEAN initiatives. Current ASEAN initiatives are geared towards mainstreaming animal health to the Region’s Community-building process by strengthening 1) Veterinary services as the foundation on an effective animal health system such as collaborating with the OIE-PSVS programme, 2) Regional coordination by commissioning a study team and decision expected on a unified regional coordination mechanism and building-up and utilization of the AAHTF, 3) Support to the animal health sector towards greater multi-sectoral health cooperation under the OWOH concept, and 4) Partnership and cooperation among partners and agencies considering comparative advantages such as the MOU with OIE and FAO, EC-HPED and ASEAN-ADB HPAI Project.

Please refer to Appendix 50 for further details.

iv) Progress with the OIE/AusAID PSVS

Dr John Stratton presented an overview of the OIE/AusAID program to Strengthen Veterinary Services (PSVS) in South East Asia, the details of which are in Appendix 51. He summarized the global and national importance of stronger veterinary services and the involvement of OIE in advocacy and support for strengthening the Veterinary Services of countries. The Performance of Veterinary Services (PVS) Pathway, including PVS evaluation, PVS gap analysis and “treatment” components were described in detail, as well as harmonisation between the PVS and other ongoing OIE Sub-Regional Representation for SE Asia programmes such as SEAFMD and HPED. Then, a summary of PVS uptake in South East Asian countries and the development of model PVS pathways in two candidate countries (Vietnam and Philippines) were presented. Other specific PSVS activities such as sub-regional training workshops on emergency management, legislation and governance, and communications and future plannings were included.
v) HPED

Dr Alain Dehove, World Animal Health and Welfare Fund coordinator, presented the OIE component of a new European Union funded Regional Cooperation Programme on Highly Pathogenic Emerging and Re-Emerging Diseases (HPED) which extends throughout Asia. EU-HPED is a four year program starting in December 2009 whose overall objective is to minimize the socio-economic impacts of HPED, by strengthening the capacity of regional institutions in Asia, with the final outcome of improved public health and veterinary public health competencies. Its key objective is then to strengthen veterinary services in Asia, notably through establishing a regional vaccine bank and through capacity building for surveillance, early detection and eradication of HPED. It will provide funding and close support to the broader OIE Programme for Strengthening Veterinary Services (the PVS Pathway, using the OIE-PVS Tool and PVS Gap Analysis). It will be overseen and guided within existing coordination mechanisms, namely the Regional Steering Committee for Asia and the Pacific of the Global Framework for Progressive Control of Transboundary Animal Diseases (GF-TADs).

The full presentation of Dr Dehove is attached in Appendix 52.

18. MEETING OF OIE DELEGATES OF SOUTH EAST ASIA (CLOSE SESSION)

The OIE Delegates in South East Asia together with the SEAFMD National Coordinators were met in a close session to discuss matters pertaining to OIE.

19. GENERAL BUSINESS

i) Finalizing Recommendations and Reports

The draft recommendations were presented to the delegates and the observers at the meeting and comments invited on each recommendation.

ii) Date and venue for the next Sub-Commission Meeting

It was agreed to hold the next meeting of the OIE Sub-Commission in Indonesia on March 2011.

20. CLOSING CEREMONY

Dr Bernard Vallat thanked the Government of Lao PDR for their support and also those who worked hard in organising the meeting. He also thanked the delegates for their contributions and the local and international observers who took the time to come and join the meeting.

21. ACKNOWLEDGEMENTS

The OIE Sub-commission for Foot and Mouth Disease in South East Asia acknowledges the continued support for the SEAFMD Campaign by its major supporters including OIE, the Australian Government through its overseas aid program AusAID, the Government of New Zealand, the Department of Livestock Development of Thailand for hosting the Regional Coordination Unit and the OIE Sub-Regional Representation for South East Asia, the Government of France, FAO, ASEAN and the Governments of all SEAFMD member countries. The Government of Lao PDR is sincerely thanked for their support and arrangements for this meeting.
Appendix I

16th Meeting of the OIE Sub-Commission for Foot and Mouth Disease in South-East Asia
Vientiane, Laos, 15–19 March 2010

Programme

14 March 2010 (Sunday)

Arrival of participants
13:30-15:30 National Coordinators’ Meeting
16:00-17:00 Meeting of Steering Committee

15 March 2010 (Monday)

08:00-08:30 Registration of participants
08:30-09:30 Opening Ceremony

Speech by the Director of the Department of Livestock and Fisheries of Laos
  – Dr Bounkhouang Khambounheuang

Speech by the President of OIE Sub-Commission for FMD in South East Asia
  – Dr Gardner Murray

Speech by the Director General of the World Organisation for Animal Health (OIE)
  – Dr Bernard Vallat

Opening Speech by the Minister of Agriculture and Forestry, Lao PDR
  – His Excellency Sitaheng Rasphone

Official photograph
9:30-10:00 Tea break

Chair: Dr Gardner Murray, President, OIE Sub-Commission for FMD Control in South-East Asia

10:00-11:30 1) Progress of the SEAFMD Campaign

   i) Objectives of meeting and modus operandi
      – Dr Gardner Murray

   ii) The SEAFMD Campaign progress report 2009/2010
      – Dr Ronello Abila

   iii) Qualitative assessment on the achievements of SEAFMD Campaign
      – Dr Sharie Michelle Aviso

   iv) Economic evaluation of the SEAFMD Campaign
      – Dr Ross Mcleod

11:30-12:00 Discussions

12:00-13:30 Lunch break
Chair: Thailand

13:30-15:30  2) Update on FMD Status

   i) Update on the world situation in relation to FMD
      – Dr Donald King
   ii) Status of FMD in 2009 and retrospective analysis of FMD outbreaks in
       South-East Asia
       – Dr Alexandre Bouchot

3) Member Status Reports
   
   Objective: provide statements and analysis of FMD situation of members
   
   Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam

15:30-16:00  Tea break

16:00-17:30  Member Status Reports (continuation)

18:30-21:00  Dinner hosted by the Department of Livestock and Fisheries of Laos

16 March 2010 (Tuesday)

Chair: Cambodia

08:30-10.00  4) Other reports

   Objective: provide sharp FMD relevant activities

   i) Reports from other members of the Sub-Commission
      – Australia, New Zealand, OIE Regional Office for Asia and the Pacific, and
      FAO
   ii) Reports from collaborators and International Agencies
      – AusAID, ACIAR, CSIRO, EC, ILRI, PR China, CIRAD-France, MAFF-
      Japan, and Chinese Taipei

10:00-10:30  Tea break

Chair: Philippines

10:30-12:00  5) Disease surveillance, diagnosis, reporting & control (SEAFMD Component 4)

   Objective: To ensure that the necessary information required to understand the regional
   epidemiology of the disease is available to member countries

   i) Country reports
   ii) Development of SEAFMD Toolkit
      – Dr Ronello Abila
   iii) Report of the OIE Reference Laboratory for FMD in Pakchong and progress
       of the SEAFMD LabNet
      – Dr Wilai Linchongsubongkoch
   iv) Progress with the SEAFMD EpiNet and Development of a training module
       for Outbreak Investigation
      – Dr Alexandre Bouchot
   v) Vaccination strategy in South East Asia
      – Dr John Stratton
   vi) Recommendations to achieve objective for Component 4.

12:00-13:30  Lunch break
Chair: Malaysia

13:30-15:30  6) Regional research and technology transfer (SEAFMD Component 6)
Objective: To identify research issues of importance to the SEAFMD programme and to facilitate participation of appropriate national and international research organisations in research and innovation through the national programmes

i) Country reports
ii) ACIAR Project on Understanding Animal Movement
   – Dr Jim Kerr
iii) Epidemiological and risk-based studies of FMD in the MTM Zone
   – Dr Polly Cocks
iv) Progress on the study of FMDV persistent infection in buffaloes
   – Dr Blesilda Verin
v) FMD research activities of AAHL-Geelong
   – Dr Wilna Vosloo
vi) Current research work on FMD in Japan
   – Dr Katsuhiko Fukai
vii) Progress on FMD vaccine development
    – representative from private companies
viii) Recommendations on future research and technology transfer

7) Livestock sector development including private sector integration (Component 7)
Objective: To facilitate developments in the livestock sector that support disease control and optimise production, and integrate the private sector into national and regional animal health systems.

i) Country reports
ii) Report of the Private Sector Consultative Committee
   – PSCC Representative
iii) Recommendations to achieve objective for Component 7.

Chair: Laos

15:30-16:00  Tea break

16:00-17:30  8) Public awareness and communications (SEAFMD Component 3)
Objective: To develop a communication approach/programme that allows for effective implementation of the SEAFMD programme.

i) Country reports
ii) SEAFMD Communication Program
   – Dr Sharie Aviso
iii) Animal Health Communication Strategy for South East Asia
   – Dr John Stratton
iv) Recommendations to achieve objective for Component 3

9) Policy, legislation and standards to support disease control and zone establishment (SEAFMD Component 5)
Objective: To ensure that animal health policies, standards and definitions are harmonised as much as possible, so that regional animal health security is assured.

i) Country reports
ii) Update on Standards (OIE Code and Manual) in relation to FMD
   – Dr Mara Gonzalez
iii) SEAFMD Progressive zoning (MTM, Upper and Lower Mekong)
   – Dr Ronello Abila
iv) Recommendations to achieve objective for Component 5

18:30-21:00  Dinner hosted by Private Sector

SEAFMD 16th OIE Sub-Commission Meeting, Vientiane, Laos
17 March 2010 (Wednesday)

Chair: Dr Gardner Murray, President, OIE Sub-Commission for FMD Control in South-East Asia

08:30-10:00  10) Programme management, resources and funding (SEAFMD Component 2)
Objective: To define adequate national resources and funding needs for delivery of defined outputs in the regional plan.

i) Review on the economic impact studies done on FMD in South-East Asian countries
   – Dr Carolyn Benigno

ii) Costs of FMD eradication in the Philippines
    – Dr Reildrin Morales

iii) Review of SEAFMD 2020 Roadmap
    – Dr Ronello Abila

iv) Recommendations to achieve objective for Component 2
    – Chair

11) International co-ordination and support (SEAFMD Component 1)
Objective: Through productive and effective relationships with national animal health services, promote and co-ordinate the regional FMD control programme, harmonise approaches to control and provide support to identified issues.

i) Country Reports

v) Progress with GF-TADs in Asia and the Pacific
   – Dr Itsuo Shimohira

vi) ASEAN Report
    – ASEAN secretariat

ii) Recommendations to achieve objective for Component 1

12) Monitoring and evaluation (SEAFMD Component 8)
Objective: To establish an internal and external review audit process to monitor and evaluate achievement of defined programme outputs

i) SEAFMD Work Plan 2010/2011
   – Dr Ronello Abila

ii) Recommendations to achieve objective of Component 8

10:00-10:30  Tea break

10:30-12:00  13) Concurrent meetings for Groups I, II

Group I - SEAFMD delegates – Chair, Dr Gardner Murray
Group II - Observer participants – Chair, Dr Bernard Vallat

12:00-13:30  Lunch break

13:30-15:30  Continuation of Group meetings

15:30-16:00  Tea break

16:00-17:00  Report back

19:00  Dinner hosted by Private Sector

18 March 2010 (Thursday)

07:00 - 17:00  Field trip

Dinner hosted by OIE
19 March 2010 (Friday)

Meeting of OIE Delegates of South-East Asia (Open Session)

Chair: Dr Gardner Murray, President, OIE Sub-Commission for FMD Control in South-East Asia

OIE Capacity Building and linkages with partner organisations
Objective: to describe key policy developments and programme initiatives relating to capacity building and to seek senior officials' views on activities and suggested approaches

08:30-10:00
i.) OIE Initiatives
   – Dr Bernard Vallat

ii.) FAO Initiatives
   – Dr Subhash Morzaria

iii.) ASEAN Initiatives
   – ASEAN Secretariat

iv.) Progress with the OIE/AusAID PSVS
   – Dr John Stratton

v.) HPED
   – Dr Alain Dehove / Dr Alexandre Bouchot / Dr Alain Vandersmissen

10:00-10:30
Tea break

10:30-12:00
Plenary – discussion/presentation by countries on key issues relevant to OIE and partners

12:00-13:30
Lunch

13:30-15:30
Meeting of OIE Delegates of South-East Asia (Close Session)

Chair: Dr Bernard Vallat

Agenda to be arranged separately

15:30-16:00
Tea break

16:00-17:00
General business

(i) Finalising Recommendations
(ii) Date and venue for the next Sub-Commission Meeting
(iii) Other business

Close of meeting

(i) Representative from the Department of Livestock and Fisheries of Laos
(ii) Dr Bernard Vallat

20 March 2010 (Saturday)

Departure of participants
### 16th Meeting of the OIE Sub-Commission for Foot and Mouth Disease (FMD) Control in South-East Asia
Vientiane, Laos, 15-19 March 2010

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SEAFMD 16th OIE Sub-Commission Meeting, Vientiane, Laos
## OIE

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Appendix III

The Southeast Asia Foot and Mouth Disease Campaign
Progress Report
(March 2009 to February 2010)

Purpose:

To advise the 16th Meeting of the OIE Sub-Commission for FMD in Southeast Asia Foot and Mouth Disease (SEAFMD) Campaign on progress of SEAFMD campaign from March 2009 to February 2010.

Highlights:

The SEAFMD Campaign continues to implement the programme based on the SEAFMD 2020 Roadmap. Progressive zoning approach is the main strategy being pursued – to control FMD in identified priority areas and progressively expand the zones to other areas. At the moment the SEAFMD member have agreed to set up zones in the Malaysia–Thailand–Myanmar (MTM) Peninsula, Upper and Lower Mekong, Sagaing in Central Myanmar, Region 2 in Thailand and Red River Delta in northern Vietnam.

OIE recognized FMD free countries (Brunei Darussalam, Indonesia and Singapore) without vaccination are maintained in 2009. Similarly, OIE recognised FMD free zones of Sabah and Sarawak in Malaysia and the four zones in the Philippines, were also maintained. No outbreak was reported in the Philippines since January 2006, and its application for zones 1 and 3 in Luzon island as FMD free without vaccination is expected to be approved by OIE in May this year.

FMD outbreaks continued in the mainland of South-East Asia. There is a significant reduction in the number of outbreaks in Laos, Malaysia and Thailand. However, significant increases of outbreaks were reported in Vietnam. A significant epidemiological observation on FMD outbreaks in Vietnam is the appearance of serotype A in the northern part, which was in the previous years, was confined only in the southern part. The increase number of movements of cattle from neighbouring countries to the north of Vietnam could be a possible factor to these outbreaks.

A big boost to the SEAFMD Campaign is the approval of AusAID of AUD 2.6 million to support the program from March 2009 to June 2011. Among the focus of the new funding is on the strengthening of the monitoring and evaluation capacity of the RCU and funding to support in-country training in outbreak investigation and management and emergency fund to contain outbreaks.

The SEAFMD Regional Reference Laboratory in Pakchong, Thailand has been finally approved as an OIE FMD Reference Laboratory during the 77th OIE General Session in May 2009. The SEAFMD Laboratory Meeting

Through the support of FAO/ADB GMS TADs project and in collaboration with AusAID/SPSCB and ACIAR Animal Movement project, the SEAFMD Campaign implemented a comprehensive study on understanding the animal movement pattern in GMS countries and identification of critical nodes where strategic intervention could be launched in the near future.

To enhance coordination and sharing of experiences, and also to build capacity of members to improve FMD control programmes, the following meetings were organised:

- 15th Meeting of the OIE Sub commission for FMD in South East Asia
- 10th Malaysia-Thailand-Myanmar (MTM) Tri-State meeting
- 8th Meeting of the Lower Mekong Working Group (LMWG) on FMD Zoning and Animal Movement Management
- 9th Meeting of the Upper Mekong Working Group (UMWG) on FMD Zoning and Animal Movement Management
- 12th National Coordinators Meeting
- SEAFMD Epidemiology Network
- SEAFMD Laboratory Network Meeting

SEAFMD 16th OIE Sub-Commission Meeting, Vientiane, Laos
Various trainings were also conducted this year in close collaboration with FAO Regional Office for Asia and the Pacific:

- Training on Outbreak Investigation Training and Management in Laos and Cambodia, involving district veterinary staff
- Trainer’s Training on Outbreak Investigation and Management in the Philippines, in close collaboration with the FAO Applied Veterinary Epidemiology Training (AVET) course
- Training on the application of Quantum GIS in animal health, participated by all SEAFMD members.

Achievements:

**Component 1: International co-ordination and support**

- The 15th Meeting of the OIE Sub-commission was successfully held in Kota Kinabalu, Sabah, Malaysia 9 to 13 March 2009. The meeting was well attended with approximately 100 participants that included the delegates from the SEAFMD members, observers, international donors/organisations, private sector and other partner organizations. Some of the major issues raised during the meeting included: Continued support from AusAID through provision of funds for Phase III of SEAFMD Campaign (2009-2011); invitation of PR China to join the SEAFMD members, given the strong participation in the program and that PR China neighbours existing SEAFMD member countries; OIE encouraged member countries to take a more active part in standard setting procedures; continued evolution of programs from HPAI, to Emerging Infectious diseases to a One Health concept; and the continued progress of the One Health Program with the support of the EC.

- The Regional Coordinator participated in the 17th ASEAN Sectoral Working Group on Livestock (ASWGL) meeting in Yogyakarta, Indonesia in May 2009. The progress of the SEAFMD campaign in 2008/2009 was presented and the recommendations of the 15th Sub-Commission Meeting were endorsed. The ASWGL continue to recognise the assistance of the SEAFMD Campaign in leading the sub-regional strategy for FMD control and eradication SE Asia.

- Dr Gardner Murray, President of the OIE Sub-commission for FMD Control in South-East Asia, and Dr Abila met the Minister of Agriculture and Cooperatives in Thailand to discuss the progress setting up of an OIE Sub-Regional Representation for SE Asia in Bangkok. It is envisaged that the SRR SE Asia will enhance OIE capability to assist the ASEAN members in strengthening the capacity of their veterinary services, leading to a more effective control of transboundary animal diseases including FMD. Similar meetings to discuss control of FMD and other TADs and OIE program to strengthen veterinary services were also held with Lao Minister of Agriculture and Vietnam’s Vice Minister of Agriculture.

- Recognition of SEAFMD as model for global control of FMD was highlighted at the OIE/FAO FMD Global Conference in Asuncion, Paraguay from 24 to 26 June. Dr Gardner Murray presented a paper on “SEAFMD 2020 Roadmap” and Dr Ronello Abila presented the “Current status and control strategies of FMD in South-East Asia”.

- The regional coordinator was invited as resource person at the 2nd meeting in drafting the ADB GMS SPS Action Plan on 3–4 August in Vientiane, Laos. The SEAFMD Campaign was well recognised in the Action Plan as good model for regional control of animal diseases. A major component of the plan is to support animal health sector enhance its capacity on disease surveillance, risk analysis and border control.

**Component 2: Program Management, Resources and funding**

- The Australian Government through AusAID has approved to provide funding to the Campaign from March 2009 to June 2011 in the amount of AUD 2,610,153. Among the focus of the new funding is to strengthen the monitoring and evaluation capacity of the RCU and funding to support in-country training in outbreak investigation and management, and emergency fund to contain outbreaks.
- In FAO/ADB GMS TADs project provided USD 82,000 to support a joint FAO/OIE SEAFMD Study on animal movement in GMS.

- Collaboration with other animal health projects in the region continues. The RCU implemented joint activities with ACIAR ULM project in Cambodia and Laos, EU-SLP in Cambodia, the AusAID/CARD project in Vietnam and the AusAID/FAO FMD eradication project in the Philippines.

- A new Project Officer, Dr Sharie Aviso, was hired to assist the Regional Coordinator in running the day-to-day operations of the SEAFMD Campaign, including the organizing of meetings and drafting of reports. The Project Officer also assists in strengthening the RCU’s M&E capacity.

- Two secondees from Cambodia (Mak Chanthol) and Laos (Khamphouth Vongxay) joined the RCU for three months to update the FMD National Plans of their countries. The secondees helped in providing critical information needed to develop country-specific strategies. Being participants of the GIS training conducted by SEAFMD jointly with FAO/APHCA, the secondees applied their knowledge in doing spatial analysis of FMD outbreaks during the past 5 years. Outputs of their analysis were used in the development of their National FMD Plans.

**Component 3: Public Awareness and Communications**

- The SEAFMD Communication Plan contributed to the development of the PSVS Animal Health Communication Strategy for South East Asia. This new document will provide guidance to further strengthen SEAFMD communication work.

- Reduced number of SEAFMD newsletters was published but electronic version of SEAFMD News was regularly distributed. Upgrading of the SEAFMD Website is ongoing to enhance design and provide more substantial information.

- During the National Coordinators’ meeting in August, it was recommended to develop the concept of a SEAFMD recognition award system for individuals or groups involved in the program. The idea is to award a “SEAFMD Warrior” medal to individuals or group of people who have conducted exemplary actions to control FMD. A SEAFMD Warrior journal will be published to compile best practices of the awardees to document commendable actions in controlling FMD that could be used as a model for others. This concept is for endorsement of the Sub-Commission.

**Component 4: Disease surveillance, diagnosis, reporting and control**

- FMD outbreaks are closely monitored to provide up-to-date information to members. The most common serotypes identified this year were serotype O of SE Asia topotype with some pockets of serotype A outbreaks. No outbreak of Asia 1 was reported, and isolated outbreaks of Cathay and Pan-Asia topotypes of serotype O need to be investigated deeply because outbreaks from these two topotypes have been declining in recent years.

  There is a significant reduction in the number of outbreaks in Laos, Malaysia and Thailand, however, significant increases of outbreaks were reported in Vietnam. A significant epidemiological observation on FMD outbreaks in Vietnam is the appearance of serotype A in the northern part, which was in the previous years was confined only in the southern part. The increase number of movements of cattle from neighbouring countries to the north of Vietnam could be a possible factor to these outbreaks.

  Indonesia remains an FMD-free country. The island states of Sabah and Sarawak in Malaysia also remain FMD-free. In the Philippines, the island of Luzon reported no outbreaks occurring since December 2005, and the rest of the country is maintained as FMD free without vaccination. Finally, Brunei Darussalam has obtained recognition from OIE as an FMD-free Country without vaccination in May 2008.
On-line reporting using the ARAHIS/WAHIS Regional Core is improving with all countries having used the system this year. Some recommendations adopted during the SEAFMD Epi-Net meeting in February 2009 have been implemented (eg. training on Q-GIS, improved reporting). The target for real-time outbreak reporting has yet to be improved.

Two trainings on Outbreak Investigation and Management (OIM) using the revised manual which was further refined to include concepts on why disease outbreaks occur and how to institute emergency control measures, were conducted in Laos and Cambodia. Many organizations such as EC, private consultancy groups requested copies of the OIM manual.

To make the OIM manual easier to learn, the SEAFMD initiated the development of an interactive CD using E-learning software, similar to RANEMA epidemiology training.

Members of the SEAFMD Epidemiology Network (EpiNet) were trained on Quantum Geographic Information System (Q-GIS), a free GIS software with comparable capabilities with existing commercial software. The training was conducted in collaboration with FAO/APHCA, the AusAID/SPSCB Project, Philippines BAI FMD Task Force and Chiang Mai University. Experts from AusVET Consultancy were the trainers. Based on the evaluation after the training, the participants indicated that Q-GIS would be very useful in strengthening their disease surveillance and control activities. Initial feedback from SEAFMD members revealed that the trainees started using Q-GIS in their daily work and this enhanced their spatial analysis of FMD outbreaks. The trainees have also started to train others at the national and sub-national level, and no additional cost is involved in distributing the Q-GIS being a free software.

The latest meeting of the SEAFMD Epidemiology Network was held in Tagaytay City, Philippines on 23-24 February 2010. Tagaytay City, Philippines. The meeting reviewed the role of the Epidemiology Network in achieving FMD freedom of the Sub-Region by 2020. Constraints encountered in disease reporting were discussed and recommendations were drafted to overcome these constraints. Furthermore, the meeting agreed to draft epidemiological studies to underpin the gaps in achieving SEAFMD 2020. Future meetings of EpiNet was suggested to be held back to back with LabNet to strengthen collaboration between field and laboratory work.

The OIE has approved the application of the South East Asia FMD Regional Reference Laboratory (RRL) in Pakchong, Thailand, as an OIE Reference laboratory for FMD. This will strengthen the diagnostic capacity of the member countries with the continuous support of the newly designated OIE Reference laboratory in Pakchong.

The 4th Sub-Regional Workshop of the SEAFMD Laboratory Network (LabNet) was held in the Regional Reference Laboratory (RRL) in Pakchong, Thailand on 1-2 October 2009. Among the highlights of the workshop were presentations and discussions on the results of the vaccine matching done in RRL and the possibility of collecting other samples like saliva and probang samples in addition to the usual surveillance and collection of vesicles in animals with active infection.

The SEAFMD conducted a study to identify the market chains and stakeholders involved in cross-border trade of livestock (large ruminants and pigs) in the Greater Mekong Sub-Region, with co-funding from FAO/ADB TADS project and in close collaboration with ACIAR ULM project. The objective of the study was to identify the market chains and highlight critical points in the chains as potential targets for strategic intervention measures aimed at reducing transmission of diseases, such as through the trading routes of livestock. The major critical points identified within the study areas included storage facilities and areas of high concentration of livestock trade. Some specific stakeholders were also identified as critical points given their highly influential position in the stakeholder network.
Results of the study have been very useful to the members. Information gathered was immediately used by members during their bilateral meetings (Cambodia-Vietnam, Vietnam-Laos, Thailand-Laos and Thailand-Cambodia). In one instance, Vietnam has taken an immediate action on information captured during a field work in Lao-Vietnam border, to mitigate risks of imported animals which did not follow existing rules and regulations. Through the ACIAR ULM project, outputs of the study were presented to the DAH, and a meeting between the DAH and traders were initiated to discuss means to mitigate disease risks along the movement.

The study provided an up-to-date information on the dynamic behavior of animal movement, which entails regular monitoring of any changes. In the wrap up workshop in July 2009 to present the outputs of this study, it was recommended to regularly conduct snapshot investigation on those identified critical points to determine any changes in the movement patterns.

Component 5: Policy, legislation and standards to support disease control and zone establishment

- The 10th meeting of the MTM Tri-State Commission was held in Yangon from 9 to 11 June 2009. The main focus of the meeting was looking forward to what could be achieved in the MTM Zones and also looking beyond the MTM Zones to control FMD in areas of strategic importance for the MTM Zones and South-East Asia generally. A key component of the meeting was a feasibility study for establishing a zone and associated control programme in the Central Myanmar Plateau. The major outcomes of the workshop were that all participants believed freedom by 2012 was not feasible in the MTM Zone and noted again the importance of controlling FMD beyond the MTM Zone boundaries.

- The 8th Meeting of the Lower Mekong Working Group (LMWG) for Foot and Mouth Disease (FMD) Zoning and Animal Movement Management was held from 23 to 25 November 2009 in Ho Chi Minh City, Vietnam. The sporadic but continued outbreaks in the Lower Mekong Zone remain to be the most important challenge being faced. A workshop was conducted jointly with ACIAR ULM project to examine the risk pathways of FMD outbreaks. Factors influencing FMD outbreaks along the animal movement pathway were identified, and this could be considered by countries in their intervention measures. The need for detailed study and documentation on the outbreaks was reiterated.

- The 9th Meeting of the Working Group on Zoning for FMD and Animal Movement Management in the Upper Mekong Region was held in Hanoi, Vietnam from 20 to 22 January 2010. Among the major outcomes of the meeting was the drafting of the country action plans for 2010 which will focus on in-country meetings. These in-country meetings will involve national and provincial level staff discussing ways to progress zonal activities in their respective countries. One of the main recommendations for the meeting is that the progressive zoning approach remains valid for the UM Zone but that the boundaries will need to be reviewed in the light of disease prevalence and animal movement patterns.

- The RCU is assisting member countries in reviewing and revising existing legislation on FMD control to better adapt with the needs in the field. The on-going activity of the PSVS on strengthening veterinary legislation underpins efforts to improve legislative support to FMD control. Laos has a new veterinary legislation. Cambodia has ongoing efforts to develop a new veterinary legislation. Indonesia, Philippines and Vietnam is on the final stage of drafting a new veterinary legislation.

The OIE has recently released guidelines on veterinary legislation to help countries undergoing review of their legislation.
Component 6:  **Regional research and technology transfer**

- In line with the research gaps identified in a study commissioned by SEAFMD and Australian Biosecurity-Collaborative Research Center (AB-CRC), the SEAFMD started to collaborate with member countries and partner organizations, to implement priority research gaps identified.

- Understanding animal movement and the market chains of different species and livestock products
  - SPSCBP animal movement studies in the MTM
  - FAO-ADB/OIE SEAFMD animal movement studies in the GMS
  - ACIAR Understanding animal movement studies in Cambodia and Laos

- Understanding the spatial and temporal distribution of FMD serotypes and its determinants
  - Ongoing analysis of FMD database
  - Case studies of selected outbreaks
  - Molecular epidemiological analysis of FMD serotypes

- Define effective vaccination strategy and examine cost effectiveness of different vaccination strategies
  - Review of vaccination strategies of members
  - Field study on different strategies

- Investigating the roles of different species in the epidemiology and transmission of FMD in South-East Asia
  - Study on the role of carrier buffalo in Laos and Myanmar
  - Study on the persistent infection in different species in Thailand
  - Sero-survey in sheep and goats in Myanmar

- The RCU continues to link with other institutions/universities and encourage them to conduct researches on FMD in the sub-region. The SEAFMD RCU is supporting the research studies of six PhD students from SE Asian countries at Murdoch University doing researches on various aspects on FMD surveillance and epidemiology. Two Masters students from Murdoch stayed with RCU for a month to conduct a study on FMD in Thailand and analysis of Cathay topotype outbreaks in South East Asia.

Component 7:  **Livestock sector development including private sector integration**

- In-country meetings with traders were conducted in Cambodia, Laos, Thailand and Vietnam. Feedback from the meetings indicated willingness of traders to cooperate with governments to follow official way of transporting animals, but raise the issue that regulations should not be too stiff to restrict their business.

- The SEAFMD and FAO RAP conducted a survey on public-private partnership (PPP) in the Philippines and Thailand with the objectives to determine the level of public-private partnership in these countries and document success stories and models already in place; identify aspects and mechanisms of cooperation between the public and private veterinary services, and; identify possible gaps that can hinder effective partnership. Results of the study indicated that PPP arrangements in both countries is still a “work-in-progress” that needs concerted efforts and deliberate actions from both sides to establish better cooperative mechanisms, confidence and commitment during the engagement process. Results from this study is very useful not only for FMD control but for other TADs as well.
Component 8: Monitoring and evaluation

- The AusAID has contracted an Independent Expert to revise the SEAFMD M&E Framework, as earlier agreed with AusAID during the review of the current funding proposal. The TOR of the expert is to “to provide implementers of the SEAFMD Campaign, particularly the RCU and, to a certain extent, the National Coordinators, a simple and workable M&E plan for the regional program that will enable better monitoring and reporting of outputs against the Implementation Plan and better outcome reporting against the program’s stated objectives.”

- The expert recommended the following:
  - The omission of a logframe as a planning and M&E tool. SEAFMD is a relatively small program in terms of staffing and budget. One unintended consequence or risk of logframes is the logframe’s tendency to generate many indicators, the M&E parallel to the ‘overly busy implementation’ noted by AusAID M&E Panels in respect of SEAFMD and two other SEA programs in May 2007. Overly busy implementation will “divert attention, reflection and evaluative thinking necessary for continuous improvement” as acknowledged by the M&E Panels.
  - The logframe’s seven component objectives have been replaced by four key desired outcomes accompanied by a set of 11 S.M.A.R.T indicators with targets and supported by qualitative data on expected and unexpected outcomes (positive and negative) collected through annual stakeholder surveys.

- Facilitated by the AusAID M&E expert, workshop was conducted in April 2009 participated by 5 NC members to draft the new M&E Framework.

- The M&E expert visited RCU for one week in July to conduct training for the new Project Officer on M&E principles and in conducting stakeholder survey.

- The AusAID funded component of the SEAFMD program has developed a new M&E Framework to regularly monitor on annual basis the expected outcomes until 2011.

- The new Project Officer conducted a stakeholder survey to gather baseline information on the outcome of the SEAFMD program from 1997 to 2008.

Recommendation:

It is recommended that the 16th Meeting of the OIE Sub-Commission:

1. NOTE progress with the implementation of SEAFMD Campaign for 2009/10

Dr Ronello Abila
Regional Coordinator
Southeast Asia Foot and Mouth Disease Campaign
Appendix IV

Qualitative assessment on the achievements of
the South-East Asia Foot and Mouth Disease (SEAFMD) Campaign
to FMD control/management in the Sub-Region

1. **Purpose:**

To inform SEAFMD Members of the results of a semi-structured survey conducted with SEAFMD member countries to assess past performance of the Program and recommend improvements to the future direction of the SEAFMD Campaign.

2. **Background:**

The SEAFMD Campaign was based on OIE’s recognition of FMD as a regional animal health and development issue way back in year 1990. This Project became a formal OIE programme in 1994 overviewed by the SEAFMD Sub-Commission chaired by OIE. The Regional Coordination Unit (RCU) based in Bangkok, Thailand commenced operations in September 1997 and has already completed two phases – Phase 1: 1997-2001 and Phase 2: 2001-2005. The 1st part of Phase 3 was implemented between 2006 and 2008. Currently the RCU is implementing the 2nd part of Phase 3 which runs from February 2009 to June 2011. Phase 3, referred to as the “consolidation phase”, aims to progress control zones to eradication zones and to develop emergency preparedness and contingency plans at regional and national levels.

Having been in operation for almost 13 years already, the RCU, Members and AusAID were in view that as the SEAFMD Program is now a mature program an independent evaluation was warranted. One of the outcomes of the subsequent evaluation during March 2009 was the conduct of a stakeholder survey as one means to support the strengthening of the Programme’s M&E aspect. The interviews, which were conducted on September 2009 to February 2010 aimed to collect information on the main outcomes catalyzed by the SEAFMD Program from 1997 up to the present. Furthermore, the interview gathered information as to the respondents’ suggestions on how to further improve the implementation of the SEAFMD Program. A more detailed report on the results of the survey will be drafted.

In parallel, there is an economic study being conducted to assess the economic impact of the SEAFMD Campaign. Both studies will provide key contributions to the future planning of the SEAFMD Programme.

3. **Methodology and limitations:**

The methodological approach is qualitative information gathering using semi-structured interviews. Semi-structured interviews provide “thick descriptions” of changes catalyzed by initiatives compared to questionnaire data (i.e. data collected through fully-structured interviews with closed questions and/or open questions with little or no probing mandated on part of interviewers). It is a commonly employed method in qualitative research which allows for focused, conversational, two-way communication and can be used both to give and receive information.

The survey was designed by the OIE SEAFMD RCU and an M&E expert. The initial question guide was long and exhausting, and was eventually reduced to allow for short interviews. Following consultation with SEAFMD National Coordinators, key stakeholders were selected based on their experience and knowledge of specific activities of the SEAFMD Campaign.

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1 OIE Regional Coordination Unit, *The South East Asia Foot and Mouth Disease Campaign, Final Project Design Document for Phase III (2009-2011)*, January 2009
2 ST M&E Adviser, *Key Findings of the Australia-Fiji Community Justice Program Survey conducted in 2007*, March 2010

SEAFMD 16th OIE Sub-Commission Meeting, Vientiane, Laos
Following the prepared questionnaire, taped interviews were conducted by the Project Officer who met with key stakeholders from seven member countries. Being free from FMD even before the inception of the SEAFMD programme, no interview was conducted in Indonesia but Indonesia will be included in future activities given the importance of maintaining disease free status, a policy priority of the country and Program.

A total of 52 respondents (10 females, 42 males) from 7 countries representing the government and private sector and collaborating agencies were interviewed from September 2009 to February 2010. The survey has 4 main questions, which being a semi-structured one, is supported by additional questions depending on the response of the person being interviewed.

The responses were then transcribed and classified into different categories. Names of individuals interviewed and the countries they represent are not listed, rather the data is aggregated. Importantly the RCU will learn from the exercise and improve as appropriate its methodological approaches to future surveys on the basis of feedback.

Due to time limitation, the Project Officer was no longer able to code transcribed data, and thus was unable to utilize qualitative data analysis software package like Atlas.ti which was presented to the National Coordinators’ Meeting in 2008. There were also time constraints in the actual conduct of the interviews making further probing not possible. With these limitations, it will be useful to focus subsequent surveys on selective themes or “niche focus areas” like the value of trainings and meetings and the possible outcomes of such activities.

4. **Key findings:**

All stakeholders interviewed consider the SEAFMD to have contributed and continues to contribute significantly to the progress of FMD eradication in the Sub-Region particularly in the areas of improving international cooperation, establishment of networks, policy development and political support, technical guidance, capacity building and tapping of donors. They are in agreement that the SEAFMD Campaign must continue beyond 2011 as there is still much to be done to achieve freedom from FMD. Being a borderless and highly infectious disease, FMD control is an activity that warrants a Regional strategy and the SEAFMD Campaign is the “conductor” that ensures the harmony of strategies employed in the national programs of member countries.

Deficiencies and/or areas needing strengthening include financial support to member countries, research works on the nature of the FMD virus, activities promoting the SEAFMD Campaign in the regional level, lobbying for support of national governments to national FMD control programs, training of staff at the grassroots level, and tapping of other offices that could act as partners in the control of FMD both at the national and Sub-Regional level.

**Main contributions/achievements**

The stakeholders were asked to identify the main contributions or achievements of the SEAFMD Campaign from 1997 up to the present. The responses covered a wide range of contributions or achievements which were categorized under 13 main headings:

- Improved international cooperation
- Establishment of networks
- Policy development and improved political support
- Facilitation of trade
- Capacity building
- Technical guidance
- Model for other Regions and for management of other diseases
- Multisectoral approaches
- Sharing of information
- Improvement of public awareness campaigns
- Support to research studies
- Support to specific country activities
  - Public awareness activities
  - Surveillance
  - Vaccination
- Motivation for improvement

Improved international cooperation

The stakeholders believe that the SEAFMD campaign has provided a “forum for member countries to work on the strategic framework which is very important because FMD is a borderless disease.” The SEAFMD is also seen to provide directions for the countries, thus preventing conflicts; and have paved the way to the establishment of a more professional coordination and sharing of knowledge through expert visits and meetings. As one NC described, “The SEAFMD Campaign is a means of helping each other. If not for SEAFMD Campaign, we will be back to our state 10 years ago.”

Establishment of networks

The activities of the SEAFMD Campaign, for example the conduct of regular meetings, allowed the stakeholders to get to know each other and share experiences. A specific activity is the MTM meeting which according to a high-level official enabled them to establish networks with neighboring countries. Because of the secondment program of the SEAFMD RCU, communication between the RCU and previous secondees continue up to the present. Many of the previous secondees now hold high level positions and play significant roles in the disease control programs in their respective countries.

Policy development and improved political support

It is generally accepted that it is difficult for any programme to succeed without political support and policies to support the programme strategies. Stakeholders believe that without SEAFMD and OIE, the policy makers will not be as enthusiastic to eradicate FMD as there is no one for them to prove that the country have been successful in eradicating the disease. One stakeholder mentioned that their Minister of Agriculture is well-informed of the program and is highly supportive of it. The Director General is supportive as well because of the good relationship established with the SEAFMD RCU. High-level officials are now convinced to discuss animal movement and under-reporting more openly because of their trust to the SEAFMD Campaign. The zoning approach has been widely understood and applied even in areas outside the MTM zone. The SEAFMD RCU has also played a significant role in assisting Vietnam and Laos draft their national program and lobby for its approval by local decision makers.

Facilitation of trade

The SEAFMD Campaign is regarded to support in facilitating trade in some member countries. In the past, cattle are used for draft power and local consumption but through the SEAFMD Campaign, the government became aware of the potential of cattle export and is now trying to improve its disease status to allow for large cattle, sheep and goat export. According to a high level official, the MTM meetings assist them in their effort to eradicate FMD in identified areas because they plan to export cattle to a neighboring country in the near future.

Capacity building

Of all the contributions identified, capacity building is mentioned the most number of times. Stakeholders identified trainings on epidemiology; laboratory diagnosis of FMD and improvement of National FMD Laboratories; the use of Quantum GIS or QGIS, disease outbreak investigation and project management for National Coordinators (NCs). Through the secondment program in the SEAFMD RCU which he was part of, a stakeholder mentioned that he was taught how to write project proposals. SEAFMD in collaboration with Murdoch University is also seen to develop the capacity of selected post-graduate students in the Sub-Region.
Technical guidance

The SEAFMD Campaign has initiated the FMD campaign in some countries and has introduced valuable strategies like the zoning approach and strategic vaccinations. Before the implementation of the SEAFMD Campaign, some countries do not have a program on FMD control. The Campaign has established zones starting with the MTM which was followed by other zones like the Lower Mekong and Upper Mekong. As one NC said, “We will not achieve what we have today without the SEAFMD Campaign. Sabah and Sarawak of Malaysia and the whole of the Philippines are free; and Indonesia remains free. We also have a Roadmap 2020 for the whole Sub-Region.”

Model for other Regions and for management of other diseases

The SEAFMD Campaign is regarded to be a model for control of other transboundary diseases in the region such as HPAI and CSF. The ASEAN HPAI Task Force has used the SEAFMD as a model in developing a strategic framework for the progressive control of HPAI. The zoning approach is highly appreciated and the SEAFMD Laboratory Network (LabNet) is now a model for other LabNets. The 8 components of the Campaign is also a good model for the management of other diseases.

Multisectoral approaches

The SEAFMD Program has worked with a range of donor agencies including AusAID, NZAID, the French Government, FAO, JICA, and others, as well as governments and industry to remove duplication, achieve complementarities of effort and leverage funds. The results of such cooperative efforts have been most encouraging and the approach has had spin off benefits to other disease management programs.

Sharing of information

The meetings spear-headed by the SEAFMD Campaign, especially the LabNet, are seen to be a good way of informing member countries on each other’s activities and driving them to do more work. One stakeholder shared that the LabNet is one of the major accomplishments of the SEAFMD because information on laboratory matters are shared and problems encountered are discussed. The Campaign is also regarded to facilitate sharing of knowledge and information especially the application of disease control measures and experiences of other countries like the public awareness campaigns in the Philippines and vaccination in Indonesia.

Improvement of public awareness campaigns

The experience of other countries on the importance of public awareness (PA) campaigns in achieving FMD freedom has motivated other countries to improve their activities relating to public awareness. One national coordinator affirmed that the PA campaign in the Sub-Region has improved because of the SEAFMD Campaign.

Support to research studies

The SEAFMD RCU has assisted post-graduate students conducting research on FMD. A stakeholder mentioned that the SEAFMD RCU has helped in both technical and financial aspect of her study. One outcome of the research studies in FMD is the planned inclusion of epidemiology as one of the subjects in a university in Myanmar.

Support to specific country activities

Given that some member countries need support to carry out specific activities, the SEAFMD Campaign has given financial and in-kind support to implement public awareness activities, surveillance and vaccination. For example, the SEAFMD RCU has provided 10,000 doses of vaccine to Cambodia in year 2008, support funds for the collections of samples and control of FMD outbreaks in Laos in 2006, direct support to Myanmar during the outbreaks in the Nargis cyclone affected areas. Through the assistance of the RCU and other donors, Cambodia was able to produce information materials like posters and leaflets; and Myanmar was able to carry out surveillance activities in selected areas.
Motivation for improvement

Two stakeholders shared that the SEAFMD campaign motivates the countries to perform well not only in terms of disease control but also in other aspects like reporting in meetings. As one laboratory staff said, “We prepare for the meetings so we do more surveillance than before. There are good discussions in the meetings and we are taught to improve through feedbacks.” Another stakeholder mentioned that because of the SEAFMD Campaign, the national FMD program staff are inspired to work, having an international body to look after their activities and give recognition for their achievements. “Through the meetings, there is the willingness to outdo each other in a positive and constructive manner. When you know what’s going on in other countries, it drives you to do more.”

Suggestions for the improvement of the SEAFMD Campaign

All stakeholders were in view that the SEAFMD Campaign must continue beyond 2011 to ensure that FMD freedom by year 2020 will be achieved. The following are the main suggestions given by the stakeholders with regard to the improvement of the SEAFMD Campaign:

- Assistance to member countries in looking for funding to implement national FMD control programs. The stakeholders greatly appreciate the in-kind support of the Campaign but to effectively control FMD, they admit that they need financial resources.
- Conduct of more research works especially on the nature of the FMD virus to add “flavor” to the Campaign.
- More involvement of the SEAFMD RCU in the national program of member countries. The Campaign must push national governments to support the national FMD control program.
- More public awareness activities to make the SEAFMD Campaign known to more stakeholders especially in the Regional level.
- More training for people in the grassroots level, especially on outbreak investigation and outbreak management.
- Focus activities to areas smaller than the presently identified zones and then eventually expand.
- Continued cooperation between member countries.
- Identification of the source of the virus and stop it from there rather than controlling at the destination.
- SEAFMD should consider the establishment of a Regional Vaccine Production Unit to have high quality, effective vaccine for the ASEAN Region.
- Member countries through the NCs should start “thinking out of the box” to implement recommendations drafted in the meetings.
- Tap other relevant offices with regard to livestock trade like the Border Management Committee between trading countries, the military, customs and other offices.

5. Conclusion:

The SEAFMD Campaign has played and continues to play a major role in the effort to eradicate FMD in the Sub-Region but it has achieved significant milestones because of the crucial role that member countries play. The cooperation of the member countries and the presence of dedicated people in the ground have made these achievements possible through the years. It is recognised that there are still a lot to be done by the SEAFMD Campaign to finally achieve SEAFMD 2020; but this can only be achieved if member countries remain dedicated and vigilant in implementing FMD control programs in harmony with the sub-regional strategy.

6. Recommendations:

It is recommended that the 16th Meeting of the OIE Sub-Commission for FMD in Southeast Asia:

1. Note the findings of the Report.
2. AGREE that suggestions of the stakeholders and those arising from discussion of the paper, be taken into account for future planning of the SEAFMD Program.
3. AGREE that qualitative semi-structured interviews provide useful tools to help assess programs and contribute to future direction; and that these be continued for using enhanced methodological approaches.
Appendix V

The FMD status in South-East Asia in 2009

Analysis of FMD outbreaks

Purpose:
To advise the 16th Meeting of the OIE Sub-Commission for FMD in South East Asia Foot and Mouth Disease (SEAFMD) Campaign on status and main trends in FMD in the region.

Summary:

Regarding the OIE criteria involving an immediate notification
It is important to note that there had been no FMD related epidemiological events requiring an immediate WAHIS notification to OIE in 2009 (no occurrence or re-occurrence of a new strain; no sudden and unexpected increase in morbidity or mortality; no evidence of a change in the epidemiology (e.g. host range, pathogenicity, etc.).

Regarding the SEAFMD definition of an outbreak
The SEAFMD definition of a FMD outbreak [occurrence of FMD in one or more animals in a farm, or village, or group sharing a common area (for example pastureland, watering point, slaughterhouse, market etc); all cases occurring within two weeks of the previous case are considered as part of the same outbreak], the Region is still endemic and regular report of the outbreaks at the regional level is necessary in order to get the right information to control and eradicate the disease.

Origin of data: Reporting from the countries
Since 2007, the reporting system have gradually shifted from monthly paper reports transmitted to the RCU to a country base data capture on the Regional Animal Health Information System (WAHIS Regional Core), via ARAHIS.
Any in-depth analysis requires reliable data. That is why it is essential that every country in the Region transmits its data on a regular basis and with harmonized procedures.

Number of outbreaks - Evolution since 2001
Indonesia has successfully maintained its FMD free-status whereas Philippines did not report any outbreak this year, as since 2006, and has achieved its goal to get Luzon 1 and Luzon 3 provinces recognized by OIE as a Free of FMD. No outbreaks have been reported in the Yunnan Province of the PR of China which is a part of the Upper Mekong Zone.

<table>
<thead>
<tr>
<th>Country</th>
<th>2001</th>
<th>2002</th>
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<th>2004</th>
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<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
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<td>46</td>
<td>20</td>
<td>40</td>
<td>43</td>
<td>45</td>
<td>64</td>
<td>36</td>
<td>41</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>66</td>
<td>12</td>
<td>35</td>
<td>49</td>
<td>4</td>
<td>103</td>
<td>20</td>
<td>54</td>
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<tr>
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<td>15</td>
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<td>41</td>
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<td>123</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
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<td>565</td>
<td>397</td>
<td>262</td>
<td>1367</td>
<td>546</td>
<td>354</td>
<td>430</td>
</tr>
</tbody>
</table>

Table 1: FMD outbreaks in South East Asia since 2001

The major epizootics reported in 2006, mainly in Vietnam did not reoccurred and the total amount of outbreaks reported (around 500) can be compared with all the other years.
Laboratory confirmation - Outbreaks serotypes – Evolution since 2002

In 2006 and for the first time, all the affected countries submitted samples from outbreaks to labs for confirmation. Most of the outbreaks (88%) were confirmed by Laboratory Tests which highlighted a real improvement in the Region.

The sample transmission to the laboratories for diagnosis and typing seems very efficient in many countries but is less systematic since 2006. We would like to reiterate that the data in the WAHIS Regional Core needs to be regularly updated and checked for their accuracy.

The serotype O (SE Asia topotype) remains the majority of reported serotypes for the whole of SE Asia and is present each country affected. Serotype A is present in Vietnam, Thailand and after having been spreading in Malaysia in 2008, has occurred in North Viet Nam in 2009.

A comprehensive description of the phylogenetic epidemiology is to be given by Dr Wilai and Dr Ronello Abila during the Sub-Commission.

Species affected, morbidity and case fatality rate; Seasonal repartition:

The most affected reported species are still cattle followed by buffalo in South-East Asia. Until 2006, only Vietnam and Cambodia were reporting sick pigs regularly. Since 2007, Thailand has also reported pig illness. Laos and Myanmar don’t report or much less. Malaysia is less concerned for cultural factor (very few pig consumption and breeding).

The only small ruminants reported to be sick are in Thailand.

Further analysis remains to be done on the basis of these observations to know whether they are linked with epidemiological patterns (pig-adapted strains, for instance) or underreporting.

Table 2: Serotypes by country since 2002

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>2002</th>
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<th>2004</th>
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<th>2006</th>
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<th>2009</th>
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<td>Unknown</td>
<td>O, A</td>
<td>Unknown</td>
<td>O</td>
<td>Unknown</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>O, A</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O, A</td>
<td>O, A</td>
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<td>O</td>
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<tr>
<td>Myanmar</td>
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<td>O, A</td>
<td>O</td>
<td>O, Asia 1</td>
<td>O, A</td>
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<td>O, A</td>
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<td>O</td>
<td>O</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
</tbody>
</table>
Regarding the case fatality rate, it has a tendency to decrease. It may be explained by a better specificity of the surveillance system: FMD may be less mistaken than previously with some other more killer diseases.

\[ \text{Illustration 1: Case fatality rate} \]

Regarding the seasonal pattern of the outbreaks, it was said that some countries are usually likely to observe most of them during the raining season (June, July and August): Myanmar, Cambodia. Some other countries see an increase probably linked with the increase of animal movements: from November to February in Thailand and Malaysia in link with movements to the south during this period; in Vietnam before and after Tet. No real pattern is detected in Laos. Nevertheless, on average on many years for the whole region, no real pattern appears.

\[ \text{Illustration 2: Cumulative cases} \]

Quick zoning concern (to be developed in the countries reports)

Myanmar  Thailand  Malaysia - MTM Commission
Few serological results available
Central zone Myanmar
Still few outbreaks reported
Upper Mekong zone
Report of numerous outbreaks due to changes in the animal movements patterns
Lower Mekong zone
Report of numerous outbreaks with few serotyping
Conclusions and recommendations:

No epidemiological event that would have requested an immediate notification to WAHIS occurred in 2009: the two main serotypes of FMD (first O, second A) seems to have globally behaved as they used to do (apart from the 2006 epizootic).

Outbreak reporting by the data capture in the WAHIS regional core is still improving from a year to another. Member countries use it more and more efficiently even if everything is still not perfect and should be improved. The epidemiological findings (source of outbreaks) are neglected in some countries limiting the production of analytic epidemiological outputs. Overall, that kind of tool is most useful if used regularly (on a monthly basis is fine, but on every day as it comes is better). The important amount of available data need to be cleared up and capitalized (for example in peer-review publications). A major improvement for the SEAFMD Campaign would be able to quantify the gap between the real prevalence of the disease and the reports at national and provincial level.

The real improvement that was noted at the 2007 Sub-Commission was laboratory sample submitting seems to have slowed down when looking country by country. In the same range of matter, it's important to remind the need to transmit samples to RRL in order, not only to have a confirmation, but also to have a phylogenetic analysis that helps to understand how FMD spreads and allow the monitoring of the vaccine matching.

Worldwide epidemiological studies and the 2006 epizootics in South East Asia stressed that, in areas where vaccination is not efficiently undertaken, the immunity level of animals decreases when natural infection decreases. So every two or three years, the animals become highly susceptible to new infections. 2010 could be a year of epizootic.
Appendix VI

Country Report of Cambodia

Abstract:

From January to December 2009 there were 35 outbreaks of FMD reported in 13 provinces (Kandal, Odar Meanchey, Kracheh, Kampong Cham, Pursat, Kampong Speu, Prey Veng, Battambang, Kampong Chhnang, Takeo, Kampot, Svay Rieng); 2,409 head of cattle, 628 head of buffaloes and 680 head of pigs showed FMD clinical signs and among that, 70 head of cattle, 65 head of buffaloes and 107 head of pigs died.

No outbreaks of FMD were reported in May and September 2009.

FMD status:

In January 2009, 2 outbreaks of FMD were reported in Ponhea Leu district, Kandal province and Chong Kal district, Odar Meanchey province caused 48 cattle and 1 buffalo were sick.

In February 2009, there were 4 outbreaks of FMD reported from different districts of 4 provinces such as Snuol district in Kracheh province; Ponhea Krek district, Kampong Cham province; Krakor district in Pursat province; Baseth and Odong districts in Kampong Speu province caused 206 heads of cattle, 316 heads of buffaloes and 25 heads of pig showed FMD clinical signs; and among that 58 heads of buffalo died.

In March 2009, 1 outbreak of FMD was reported in Chhloung district; Kracheh province caused 128 head of cattle and 8 head of buffaloes showed FMD clinical signs.

In April 2009, there were 6 outbreaks of FMD reported in Kamchey Mear district, Prey Veng province; Prey Chhor district, Kampong Cham province; Moung Russei district, Battambang province; Rolea B’ier district, Kampong Chhnang province; Kandal Steung district, Kandal province; and Treang district, Takeo province; 419 head of cattle, 145 head of buffaloes and 196 heads of pigs showed FMD clinical signs and, among that, 5 head of cattle; 4 head of buffaloes and 56 head of pigs died.

In June 2009, there were 4 outbreaks of FMD reported in Kong Pisei, Samrong Tong and Baseth districts, Kampong Speu province; and Treang district, Takeo province, 476 head of cattle and 195 heads of pig showed FMD clinical signs and, among that, 51 heads of cattle and 5 heads of pigs died.

In July 2009, there were 7 outbreaks of FMD reported from different districts such as Treang district, Takeo province; Dong Tong district, Kampot province; Runduol, Svay Teab, Romeas Haek and Svay Chrum districts, Svay Rieng province; and Kracheh district, Kracheh province caused 263 heads of cattle and 61 heads of buffaloes showed FMD clinical signs.

In August 2009, there were 8 outbreaks of FMD reported in Svay Teab and Kampong Rou districts, Svay Rieng province; Kracheh and Chhloung districts, Kracheh province; Treang district, Takeo province; Thboung Khmum and Cheung Prey districts, Kampong Cham province, 236 heads of cattle, 85 heads of buffaloes and 125 heads of pigs showed FMD clinical signs and, among that, 2 heads of cattle, 3 heads of buffaloes and 24 heads of pigs died.

In October 2009, there were 5 outbreaks of FMD reported from different districts such as Bavel and Phnom Prek district, Battambang province; Treang district, Takeo province; Steung Trang and Prey Chhor districts, Kampong Cham province caused 501 heads of cattle and 59 heads of pigs showed FMD clinical signs and, among that, 1 head of cattle and 9 heads of pigs died.

In November 2009, there were 3 outbreaks of FMD reported in Phnom Prek district, Battambang province; Treang district, Takeo province; Bakan district, Pursat province caused 52 heads of cattle, 12 heads of buffaloes and 80 heads of pigs showed FMD clinical signs and, among that, 1 head of cattle and 13 heads of pigs died.

In December 2009, there was 1 outbreak of FMD reported in Tramkok district, Takeo province, 80 head of cattle showed FMD clinical signs and 10 head of cattle died. (See map on p 65).
Report on achievement of objectives of the SEAFMD Campaign:

**Component 1: International co-ordination and support**

In close cooperation with SEAFMD/OIE and member countries, Cambodia foresees an effective FMD control campaign through strengthening FMD Surveillance and Information System, controlling animal movement and accreditation of veterinary services.

DAHP is seeking the support from AusAID, JICA, ACIAR, OIE, FAO, USDA, EC/SLPP, and other bilateral support in the area of animal health research and support to veterinary services to protect the national herds and flocks from the intrusion of disease, protect consumer health and facilitate animal trades.

**Component 2: Programme Management, Resources and funding**

Department of Animal Production and Health is still working on the veterinary law for Cambodia veterinary purpose.

The national plan for FMD control program in Cambodia has been submitted to the Ministry of Agriculture, Forestry and Fisheries for approval. Now, Department of Animal Production and Health is working with SEAFMD/OIE to develop national plan for FMD control for 2011-2015.

The disease risk management function that is being put in place is to manage animal health at the village production level and support the Animal Production Service in developing sustainable livestock production (SLP). This program is expected to improve the productivity and provide a degree of certainty over profitability to the farm gate. In order to achieve this function it is necessary to strengthen the national and international coordination and cooperation to ensure the technical requirement in place.

To undertake this Animal Disease Risk Management, DAHP is seeking for support in the following areas:

- b. Veterinary Law and Disease Control Legislation Development
- c. Disease Control Programme

There are enough human resources in Cambodia and the issues are no funding to support the staff and activities.

**Component 3: Public Awareness and Communications**

1.3- FMD Public Awareness

DAPH cooperate with local media such as local national language newspaper, Cambodia Daily, Cambodge Soir and a Chinese language newspaper for public awareness. The FMD outbreaks have become a media’s interest in Cambodia. The awareness activities are also carried out by the provincial animal health and production officers and village animal health workers through farmer training, brochures, leaflets and posters. We work with SEAFMD Campaign to develop poster and these poster was already distributed to farmers at the provinces (see pictures 1 on pp 66-68). SEAFMD provide fund to produce 10,000 leaflets, 20,000 Sticker and 4,000 and DAHP also produce 10,000 posters, 15,000 leaflets and new super cow sticker 5,000 PCS. In January 2009, DAHP received FMD vaccines of 10,000 doses from SEAFMD. Some of these vaccines have been sent to some provinces for ring vaccination due to FMD outbreaks.

3.2- Linkages within the Department of Animal Health and Production

The Epidemiology Unit has performed update analysis and disease outbreak monitoring. This unit has direct communication links with the provincial veterinary officers and through them to the district veterinary service sectors. This reporting channel is being developed under DAHP structure that link from the district to province and province to the central monitoring and evaluation unit.

3.3- Education

The two major ecosystems of Cambodia from the animal production viewpoint are the lowland Mekong basin area and the highland. The highland offers a potential for stratification of a cattle industry and the high cropping zone of the plains a fattening potential for both pigs and ruminants.

**Component 4: Disease surveillance, diagnosis, reporting and control**

National Veterinary Research Institute (NaVRI) of Department of Animal Health and Production (DAHP) in collaboration with the OIE SEAFMD Regional Coordination Unit organized the disease outbreak investigation training for Provincial and District Veterinarians for four provinces (Kampong Chhnang, Pursat, Battambang, Banteay Meanchey) from 20 to 22 July 2009. The purpose of the training was the investigation of outbreaks of Transboundary Animal Diseases (TADs) which focus on FMD, highly pathogenic avian influenza (HPAI) and
classical swine fever (CSF). In addition, NaVRI collaborate with USDA to organize the training course on Analytic Veterinary Epidemiology for district/provincial veterinarians, Wildlife Protection Office, Royal University of Agriculture, Preak Leap National School of Agriculture and Kampong Cham National School of Agriculture from 22 to 26 December 2009 (see pictures 2 on pp 69-70).

NaVRI sent one staff to attend the Secondment Training Program for Member Country at SEAFMD Office in Bangkok, Thailand from November 2009 to January 2010.

Work with SLPP on animal disease surveillance in four targeted provinces in order to strengthen animal disease information system using the standard report format for negative report and monthly report. The animal diseases for negative report and monthly report in target provinces are FMD, HS, CSF and ND as well as support the provincial staff in properly entering data in TAD-Info (See attached report format).

NavRI sent staff to attend the following training:
- Attend 15th meeting of the OIE Sub-Commission for FMD in South-East Asia in Malaysia in March 2009.
- Attend the SEAFMD Epidemiology Network Meeting in Philippines on 23-24 February 2010
- Project activities of regional technical cooperation project for animal disease control among Cambodia, Laos, Malaysia, Myanmar, Thailand and Vietnam (ADC 2 Project) in Vietnam.
- Attend the 4th Regional Joint Coordinating Committee Meeting in Myanmar.
- Attend the Regional Epidemiological study Model Workshop in Thailand.
- Attend GF-TADs Meeting in Indonesia.
- Attend the OIE PSVS Workshop on Animal Heath Communication in Philippines.
- Attend the FAO/OIE Sub-regional HPAI laboratory network meeting and bio-security training with support from AusAID, Japan TF and USDA in Thailand.

**Component 5: Policy, legislation and standards to support disease control and zone establishment**

The Ministry of Agriculture, Forestry and Fisheries (MAFF) envisages that the Animal Health Services (AHS) is lead division for animal health and production matters. The objectives within the AHS are to protect the national herds and flocks from the intrusion of disease, protect consumer health and facilitate trade. Its function is to limit animal health risks by the ready access of livestock owners to an adequately trained livestock service provider that is linked closely to and managed by the Provincial Office of Animal Health and Production.

The credibility of the AHS depends on the development of adequate and enforceable disease control legislation, animal disease surveillance and the implementation of strategic and transparent health programs. Having achieved the forgoing together with quality assurance over processing it then becomes possible for Cambodia to exploit it’s natural resources through livestock production and enter the more lucrative regional export markets.

The livestock development has been foreseen as potential livelihood in the rural area for improving nutrition and income generation. Providing opportunities for the development of smallholder fits well with the government policy for Food Security and Poverty Reduction through supporting services for livestock owners in animal husbandry, disease prevention, credit and marketing. A medium and long term approach is the privatization of the animal health and production technology and service sectors, which are to managed and coordinated at the provincial and national level by DAHP with a mandate of all stakeholders’ beneficiaries nationally and internationally (National Strategic Plan for Animal Health and Production, DAHP 2000).

Department of Animal Production and Health is still working on veterinary law for implementing in Cambodia.

Satisfying the long-term development, DAHP will be focusing its attention on following goals to:
- Improve animal health and production services
- Improve the rural income
- Improve quality and productivity of livestock
- Strengthen legislation and livestock trade
Component 6: Regional research and technology transfer

- Understanding of the effectiveness of the vaccination on Newcastle disease, FMD and CSF in four target provinces of SLPP project
- Studying and understanding livestock movement, by developing an information network and reporting system (ACIAR)
- Study of retrospective movement data

For FMD antibody testing FMD antigen (A, O, Asia 1) and anti-serum control (C++, C+, C-) from Pak Chong, Thailand have been used. Following results were obtained.

Table 1: Number of samples and results before vaccination

<table>
<thead>
<tr>
<th>Province</th>
<th>Type O</th>
<th>Type A</th>
<th>Type Asia1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Samples</td>
<td>Antibody Positive</td>
<td>Number of Samples</td>
</tr>
<tr>
<td>Kampong Speu</td>
<td>50</td>
<td>26</td>
<td>50</td>
</tr>
<tr>
<td>Kampong Chhnang</td>
<td>51</td>
<td>23</td>
<td>51</td>
</tr>
<tr>
<td>Takeo</td>
<td>55</td>
<td>3</td>
<td>55</td>
</tr>
<tr>
<td>Pursat</td>
<td>50</td>
<td>18</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>206</td>
<td>70</td>
<td>206</td>
</tr>
<tr>
<td><strong>% positive (average)</strong></td>
<td><strong>33.98</strong></td>
<td><strong>58.74</strong></td>
<td><strong>10.20</strong></td>
</tr>
</tbody>
</table>

In all provinces antibody positive cattle for all 3 tested serotypes were found in the blood samples taken before vaccination. Possibly as result of previous FMD outbreaks, the information in relation to this obtained from the Chief OAHP Kampong Speu gives following although rough situation of FMD outbreaks over the past 3 years in the province. 2006 has been the year with the highest number of outbreaks. Outbreaks were reported from June till December 2006.

Table 2: Number of samples and results after vaccination

<table>
<thead>
<tr>
<th>Province</th>
<th>Type O</th>
<th>Type A</th>
<th>Type Asia1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Samples</td>
<td>Antibody Positive</td>
<td>Number of Samples</td>
</tr>
<tr>
<td>Kampong Speu</td>
<td>50</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>Kampong Chhnang</td>
<td>50</td>
<td>43</td>
<td>50</td>
</tr>
<tr>
<td>Takeo</td>
<td>50</td>
<td>33</td>
<td>50</td>
</tr>
<tr>
<td>Pursat</td>
<td>50</td>
<td>42</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>200</td>
<td>158</td>
<td>200</td>
</tr>
<tr>
<td><strong>% positive (average)</strong></td>
<td><strong>79.00</strong></td>
<td><strong>93.00</strong></td>
<td><strong>86.50</strong></td>
</tr>
</tbody>
</table>

The blood samples tested after the vaccination campaign show an increase in antibody positive animals compared to the situation before the campaign. Of the Type O positive antibody samples 118 (74.68%) out of 158 are protective with a titer of 1/80. Of the Type A positive antibody samples 134 (72.04%) out of 186 are protective with a titer of 1/80. Of the Type Asia1 positive antibody samples 145 (83.81%) out of 173 are protective with a titer of 1/80.
Transboundary animal diseases (TADs), FMD and CSF in particular, are permanent threat for livestock keepers with major economic implications through the costs of outbreaks and measures taken in order to prevent or control infection and disease outbreaks (Otte, 2004), and are endemic for many decades and pose the greatest threat to the poor livelihood in the Lower Mekong basin.

A longitudinal study of FMD and CSF in southern provinces of Cambodia has conducted in two provinces (Takeo and Kampong Speu). The objectives of this study are to provide information on the patterns of FMD and factors contributed to the occurrence of FMD in the southern provinces of Cambodia which can be obtained by conducting the longitudinal study of the disease in cattle, buffalo and pigs.

**Component 7: Livestock sector development including private sector integration**

Department of Animal Health and Production with the collaboration from SEAFMD Campaign and OIE organized the meeting with traders and other stakeholders on 26 November 2007. The purpose of this meeting is to facilitate developments in the livestock sector that support disease control and optimise production, and integrate the private sector into national and regional animal health systems.

NaVRI/DAHP collaborate with ACIAR Project to organize trader meeting in July 2009 and this meeting, we invite large companies (pig and cattle) because the purpose of this meeting is to explain the company about the ACIAR Project and how to transport animal safety due to minimizing the animal disease especially to have the good coordination between government, VAHWs and private sectors (see picture 3 on p 70).

**Component 8: Monitoring and evaluation**

**Objective:** To establish an internal and external review audit process to monitor and evaluate achievement of defined programme outputs.

Dr Sharie Aviso came to interview the stakeholders in Cambodia about SEAFMD program. Dr John Stratton, Phd student came to see the FMD outbreak in Takeo province and vaccine distribution during FMD outbreaks.

Author and date: National Veterinary Research Institute, 12 March 2010

Attachments:

1. Disease situation (maps, graphs, tables)
2. Pictures of activities, public awareness materials, etc.
FMD distribution from January to December 2009, Cambodia

Number of FMD outbreaks by month

Number of outbreaks by month (January-December, 2009)
FMD virus types in Cambodia

<table>
<thead>
<tr>
<th>Year</th>
<th>Species</th>
<th>FMDV Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>Bovine</td>
<td>O</td>
</tr>
<tr>
<td>2003</td>
<td>Bovine</td>
<td>O</td>
</tr>
<tr>
<td>2004</td>
<td>Bovine</td>
<td>O</td>
</tr>
<tr>
<td>2005</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2006</td>
<td>Bovine, Swine</td>
<td>O, A</td>
</tr>
<tr>
<td>2007</td>
<td>Bovine, Swine</td>
<td>O, A</td>
</tr>
<tr>
<td>2008</td>
<td>Bovine</td>
<td>O, A</td>
</tr>
</tbody>
</table>

Pictures 1: Activities implemented during FMD outbreaks
Pictures 2: Training Activities
Reporting format

Picture 3: Meeting with company
Country Report of Indonesia

Abstract
Indonesia declared its freedom from FMD in 1986 and it was recognised by OIE in 1990. In order to maintain the free status of FMD, control programme implemented is mainly focused on surveillance, emergency preparedness and public awareness. The following aspects are reported, namely: International co-ordination and support; Programme management, resources and funding; Public awareness and communications; Disease surveillance, diagnosis, reporting and control; Policy, legislation and standards to support disease control and zone establishment; Regional research and technology transfer; Livestock sector development including private sector integration; and Monitoring and evaluation.

FMD STATUS
Indonesia free from FMD was recognised by the OIE in 1990. The programme to maintain the free status of FMD is mainly focused on surveillance, emergency preparedness and public awareness.

REPORT ON ACHIEVEMENT OF OBJECTIVES OF THE SEAFMD CAMPAIGN:
Eight components of SEAFMD strategic plan implemented by Indonesia are summarised as follows.

Component 1: International co-ordination and support
Indonesia has been participating in a number of meetings of FMD as well as other Transboundary Animal Diseases in South-East Asia.

Component 2: Programme management, resources and funding
Indonesia has agreed to contribute a total amount of US$ 300,000 to be paid for 6 years at US$ 50,000, starting from 2006.

Component 3: Public awareness and communications
Internally, Indonesia prepared an Handbook of FMD as well as INDOVET plan on FMD and distributed to the target persons/institutions, current edition was released in 2009. A simulation of outbreak will be conducted mid-2010. Externally, Indonesia attended Communications Workshop and a communication person was appointed.

Component 4: Disease surveillance, diagnosis, reporting and control
In the financial year of 2010, until the end of February, the National Centre for Veterinary Biologics (Pusvetma) in Surabaya has not yet collected serum samples from targeted areas.

Component 5: Policy, legislation and standards to support disease control and zones establishment
Law No. 18/2009 regarding Animal Husbandry and Animal Health is a new Act has been approved by Legislative and replaces the Act no. 6/1967 regarding Animal Husbandry and Animal Health. INDOVET Plan of FMD has been revised in 2009.

Component 6: Regional research and technology transfer
Applied research was initiated by The Indonesian Research Centre for Veterinary Science (Bbalitvet). Other research activity is conducted as part of degree studies in collaboration with Australia.

Component 7: Livestock sector development including private sector integration
The involvement of private sectors sectors for disease control is obvious. A number of private companies have been participating on HPAI controls. It should also be working for FMD.

Component 8: Monitoring and evaluation
Internal monitoring and evaluation (MONEV) of overall animal health program are mainly conducted by routine MONEV activities by DGLS and Provincial as well as District Livestock Services. External assessment of veterinary services in Indonesia has been conducted by OIE on the PVS programme.
Appendix VIII

Country Report of Laos

Summary of FMD status:

In Lao PDR, FMD is endemic, from January to December 2009 there were ten FMD outbreaks officially reported in six of Lao PDR namely Champasak, Xienkhouang, Oudomxai, Luangnamtha, Xayabouli and Khammuane. When the outbreak occurred, control measures such as: animal movement control in the outbreak area, sample collection and testing at the National Animal Health Centre and some sample had been sent to the regional reference laboratory for confirmation have been implemented. Sixteen diagnostic samples were supplied to the laboratory of which 11 (68.75%) were positive for the presence of FMD Type O antigen. Outbreak occurred in January, February, August and September; the first wave of out break may was the subsequent from the outbreak in 2008.

Overall, the total number of animals affected with FMD was 1,258 of which cattle 1,047 and 241 buffaloes, if we look at the number of infected animals and number of cases comparison to the outbreak in 2008 is reduced.

Report on achievement of objectives of the SEAFMD Campaign:

Component 1: International co-ordination and support

In The following summarizes the activities of related projects, which are working on FMD control program in Lao PDR over the last year as follows:

OIE/RCU:
- DLF participants attended the 15th OIE-Sub commission in Sabah, Malaysia
- DLF in collaboration with RCU SEAFMD organized the 5th Meeting of the OIE/SEAFMD LabNet

ACIAR:
- ACIAR project AH/2006/025 Understanding livestock movement and the risk of spread of transboundary animal diseases: data collection on animal movement and risk related factors for spreading of animal diseases.

TICA and Lao-Thai bilateral cooperation:
- Lao PDR has and Thailand has implemented TICA project on strengthening of diagnostic capability and disease surveillance in Champasak province, under this project two of Lao staffs had been trained on FMD diagnosis in Thailand, dispatch of experts and supply of laboratory equipments, reagents and vaccines.

JICA phase II:
- Strengthening of disease surveillance capability in Savannakhet province by training of district staff and VVWs.

FAO Project:
- Lao PDR received support reagents for FMD diagnosis donated from FAO through RRL and this kind of support will continue in the future.
- Under FAO/AI projects have been organized training course for VVWs, these VVWs can be work as FMD surveillance network.

FAO/ADB TADs in GMS Project:
- Lao PDR have received one Bio-safety Cabinet for FMD Laboratory supported by the project.

Bilateral cooperation

Regional cooperation has been placed as a high priority for FMD control in Lao PDR, these are the collaboration projects between the governments of Lao PDR and Thailand, Lao PDR and Vietnam as well as Yunnan province of China. Every year between Laos and those countries had organized annual meeting to develop and implement
pilot control strategies, to discuss cooperation policies in possible future trading opportunities and the reduction in illegal animal trading and FMD control programmes along common borders.

**Component 2: Programme management, resources and funding**

National Animal Health Centre (NAHC), Department of Livestock and Fisheries (DLF) is responsible for promoting animal health and controlling animal diseases. In order to follow up the action plan of SEAFMD the Lao PDR has gradually participated in the collaboration and co-operation with the neighboring countries in the region and with international agencies. Due to the Lao government has quite limited national budget resources for the financial support of FMD control activities; therefore the need for supporting from donor agencies in the form of bi-lateral or regional veterinary services projects is essential.

**Component 3: Public awareness and communications**

The strengthening communication and enhancing public awareness in FMD control programme among stakeholders play important role for effective implementation of FMD control programme. The Department of Livestock and Fisheries is the principal government agency in the country being responsible for all aspects of animal health and animal production. During this year several activities were taken such as:

Before undertaking an emergency or regular vaccination programs (HS and FMD), the farmers, administrators, Village Veterinary Workers, civil authorities and local animal health authorities were educated about the negative impact of FMD on livestock production and rural agricultural development. On this occasion visual aids were used. (i.e. brochures, posters, videos on animal disease).

When an outbreak occurred, the Ministry of Agriculture and Forestry notified the local authority to take measures forbidding animal movement from epidemic or control zone to other areas. At the same time the media were informed about the animal movement restrictions, animal health care and if there were any problems how to contact to the animal office.

Strengthening and upgrading the knowledge of checkpoint staff in order to inspect the disease control work.

**Component 4: Disease surveillance, diagnosis, reporting and control**

FMD surveillance during the year 2008 mostly is passive based on the disease reporting system. During the period of an outbreak, field sample collection and testing in the laboratory is performed. Furthermore emergency ring vaccination campaign has been performed. 10 000 doses of FMD were supplied from DAH, Vietnam under bilateral agreement, these vaccines had been used to vaccinate in Vientiane, Xayabouly and Champasak provinces.

Reporting:

Even the Lao Government has establish the reporting system through out the country, and networking the information system from central to grass root level, but during the implementation of national animal health information the following constraints and problems have been experienced most widely:

- Poor of reporting and information system this means that some times the reports from the field are often received too late, some times with a delay of 2 or 3 months.
- There is a limited human resource in veterinary services and limited field visual materials as well as financial resources to support the launching of animal health information to target audiences.
- Farmer knowledge on economic effect of FMD is still limited.

**Component 5: Policy, legislation and standards to support disease control and zones establishment**

- Veterinary and Livestock Law has been approved the National assembly in July 2008 and is coming to enforce.
- Prime Minister Decree on Animal Disease Control in the Lao PDR 2007.
- Prime Minister Decree on Animal Movement Management in the Lao PDR 2007.
- Prime Minister Decree on Meat Inspection in the Lao PDR 2007.
- National strategic plan for FMD control in the Lao PDR, DLF 2004 now being review.
- Establishment of FMD control zones, the MOU of UMZ commission is under process to get approval from MAF.
Component 6: Regional research and technology transfer

ACIAR projects:
- ACIAR project AH/2003/001 Management of CSF and FMD in Lao PDR. The project focuses on the sample collection and testing, supply of reagents.
- ACIAR project AH/2006/025 Understanding livestock movement and the risk of spread of transboundary animal diseases: data collection on animal movement and risk related factor for spreading of animal diseases.

In collaboration with SEAFMD and Murdoch University
- First sample collection was carried out on September 2008, 187 serum samples, 187 saliva samples and 187 probang samples were collected from Buffaloes in 2 villages at FMD outbreak, and 1 village non outbreak area in Pakgum district, Vientiane. The Samples had been sent to Pirbright
- Second sample collection was carried out in May 2009 and samples are being tested in Pirbright.
- Third sample collection was held in September 2009.

Component 7: Livestock sector development including private sector integration

Currently DLF implements two projects:
- LDP project is loaned and grant project to support and help poorest former in 5 provinces in the northern region or Lao PDR.
- Lao-EU project is a second phase of livestock support project in 5 provinces in the northern region of Lao PDR
- Lao Hungarian Project

Activities of both projects are to promote and improve livestock production and marketing.

Component 8: Monitoring and evaluation

Emergency report in case of new outbreak.
- Monthly report from PAFO to NAHC, DLF
- Submission SEAFMD monthly outbreak reports.

### SUMMARY FMD OUTBREAK IN 2009

<table>
<thead>
<tr>
<th>ID</th>
<th>Province</th>
<th>District</th>
<th>Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>09/001</td>
<td>Champasak</td>
<td>Phonethong</td>
<td>Jan</td>
</tr>
<tr>
<td>09/002</td>
<td>Champasak</td>
<td>Pakse</td>
<td>Jan</td>
</tr>
<tr>
<td>09/003</td>
<td>Champasak</td>
<td>Pakse</td>
<td>Jan</td>
</tr>
<tr>
<td>09/004</td>
<td>Xiengkhounang</td>
<td>Thathome</td>
<td>Jan</td>
</tr>
<tr>
<td>09/005</td>
<td>Champasak</td>
<td>Champasak</td>
<td>Feb</td>
</tr>
<tr>
<td>09/006</td>
<td>Xiengkhounang</td>
<td>Pek</td>
<td>Feb</td>
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<td>Oudomxay</td>
<td>Namor</td>
<td>Aug</td>
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<tr>
<td>09/008</td>
<td>Luangnamtha</td>
<td>Sing</td>
<td>Aug</td>
</tr>
<tr>
<td>09/009</td>
<td>Khambmuane</td>
<td>Nongbok</td>
<td>Dec</td>
</tr>
<tr>
<td>09/010</td>
<td>Xayabouly</td>
<td>Paklai</td>
<td>Dec</td>
</tr>
</tbody>
</table>
Country Report of Malaysia

FMD STATUS 2009

FMD is a notifiable disease in Malaysia. As such, there is a national control and eradication programme and annual federal budget provided by the Ministry of Agriculture and Agro-Based industry for implementation of control and eradication measures.

The States of Sabah and Sarawak are free of FMD. However, in Peninsular Malaysia the status of FMD has improved significantly in year 2009, reducing outbreaks by 24% compared to year 2008. There was continuity of better reporting of FMD outbreaks. There were 111 numbers of FMD outbreaks from January to December with the range from 0 to 34 outbreaks and a mean of 9 outbreaks per month. Temporally majority of the outbreaks were detected in the last Quarter (festive season) of the year and spatially outbreaks clustered in two states namely Kedah and Kelantan in the MTM Zone. These outbreaks were related to animal movements, imported animals that were exposed to FMDV (NSP positive) and low vaccination coverage. In the first Quarter of the year FMD outbreaks have been well under control (refer to PowerPoint Presentation).

The new livestock importation policy was to enable to meet the shortfall in the importation from Australia and have better risk management measures for live animal imports from Thailand. Even though the new strategy for control and eradication of FMD has tremendously reduced the illegal movement of live animals across the border, there were still cattle that were illegally brought into the country causing outbreaks. Another factor contributing to the increase is the endemic status where the disease spread laterally due to illegal movement within the country. FMD serotype O (39%) is still the most common isolate and to a lesser percentage (6%) serotype A. Diagnosis for FMD is done at the National FMD Laboratory in Kota Bharu, Kelantan. The main constraints were in the control of illegal movement of animals. Animal health and Veterinary measures related to FMD control include strategic vaccination, legislation, disease investigation, surveillance and reporting.

Report on achievement of objectives of the SEAFMD Campaign:

Component 1: International co-ordination and support

Objective: Through productive and effective relationships with national animal health services, promote and co-ordinate the regional FMD control programme, harmonise approaches to control and provide support to identified issues.

Achievements:

For international support trade, transparency is important. This is been done through our website and disease reporting mechanisms. Prior to import of live animals from neighboring countries, risk analysis and recommendations for mitigation measures was done. This was realized through reviewed import-export protocols. Attended the 15th Sub-Commission Meeting in Kota Kinabalu, Sabah, Malaysia from 9 to 13 March, the 10th MTM TSC Meeting in Yangon, Myanmar from 9 to 11 June, the OIE 76th General Session, Paris, France from 25 to 30 May, OIE/FAO Global FMD Conference, Asuncion, Paraguay from 24 to 26 June and the 11th SEAFMD National Coordinators Meeting.

Component 2: Programme Management, Resources and funding

Objective: To define adequate national resources and funding needed for delivery of defined outputs in the regional plan.

Achievements:

The new national control and eradication strategy was approved. The annual budget was used to control FMD. Proposal for a budget for the implementation of this strategy has been prepared and is in process for submission to the Economic Planning Unit for approval for the 10th Malaysian Plan 2011-2015.
Component 3: **Public Awareness and Communications**

**Objective:** To develop a communication approach/programme that allows for effective implementation of the SEAFMD programme

**Achievements:**

Public Awareness and Communication is a continuous activity. There has been ongoing meeting with farmers/investors mostly at district levels. Pamphlets distribution was done during vaccination campaigns and seminars. Also seminars on the roles of farmers/traders towards FMD control were held at State levels. Attended OIE SEAFMD campaign communication workshop held in Manila, Philippines. A Veterinary Officer at the Disease Control Section at DVS Headquarters has been identified to undertake task on improvement.

Component 4: **Disease surveillance, diagnosis, reporting and control**

**Objective:** To ensure that the necessary information required to understand the regional epidemiology of the disease is available to member countries

**Achievements:**

The Epidemiology section for disease surveillance and reporting undertook an epidemiological study of outbreaks in 2009. The most common serotype identified were serotype O and to a lesser percentage serotype A. The topotype for serotype A was Asia and SEA-Myanmar 98 and ME-SA PanAsian (1 case) for serotype O. Investigations on the source of the PanAsian O are being undertaken. The study also identified critical nodes related the outbreaks. Control of FMD was done more effectively by applying the ‘Outbreak Index Control Management’ operating procedures. Attended the EPINET meeting during the MTM control zone meeting in Myanmar.

Component 5: **Policy, legislation and standards to support disease control and zone establishment**

**Objective:** To ensure that animal health policies, standards and definitions are harmonised as much as possible, so that regional animal health security is assured.

**Achievements:**

Our Animal health policies include vaccination, legislation, emergency preparedness and public awareness. The Animal Ordinance 1953, (Revised 2006) is the main legislation related to animal health including disease control. The new FMD control and eradication strategy is aimed to achieve FMD free status with vaccination by 2015. Participate to review of MTM goals for freedom and has agreed that the most feasible target year for freedom be changed to 2015.

New Protocol for FMD Control and Eradication draft is ready and being circulated for correction, inputs and agreement.

Component 6: **Regional research and technology transfer**

**Objective:** To identify research issues of importance to the SEAFMD programme and to facilitate participation of appropriate national and international research organisations in research and innovation through the national programmes

**Achievements:**

The development of the FMD Rapid Diagnostic Kit is in progress. Staff of the DVS, Dr Faizah, is pursuing post graduate studies on molecular epidemiology study of the serotypes isolated in Malaysia. A research study on ‘Animal Pathways and Livestock Trading Networks in Malaysia’ in relation to FMDV transmission and spread was undertaken together with Dr Polly Cocks from SEAFMD Bangkok in November 2009. Collaboration with EPINET is continuing.
**Component 7: Livestock sector development including private sector integration**

*Objective:* To facilitate developments in the livestock sector that support disease control and optimise production, and integrate the private sector into national and regional animal health systems.

*Achievements:*

Veterinary services of Malaysia and Myanmar collaborated with their private sectors to facilitate trade of livestock e.g. construction of quarantine stations and yards in Myanmar, testing for diseases (e.g. FMD, brucellosis, tuberculosis). The National Feedlot Centre (NFC) is being developed as a supplier of feeder cattle to the feedlot industry. This is to cater for the increased demand for beef. The plantation based companies (integrated livestock farming in oil palm plantations) have been identified to increase in the breeder population with support from funds available from the Livestock Development Breeding Program to purchase these breeders.

**Component 8: Monitoring and evaluation**

*Objective:* To establish an internal and external review audit process to monitor and evaluate achievement of defined programme outputs.

*Achievements:*

Monitoring of vaccination in strategic areas and vaccination of all imported animals. There is regular reporting to ARAHIS and to the OIE. There were also internal meetings to evaluate the control programme by the Epidemiology section.
Appendix X

Country Report of Myanmar

Abstract:

FMD is recognized that the contagious disease of high incidence and caused disturbances especially in agriculture and livestock sector development. The livestock production is of utmost important to meet national requirement for draft animals, meat, and milk and animal products. The health and productivity of the draft animals at this critical period in agricultural activities are thus vital in the achievement of optimum crop production and yields. In 2009, there is increase in the incidence of FMD in the country. Total of 21 outbreaks were reported and all were due to the FMD O type.

FMD status:

FMD outbreaks have been recorded in all states and divisions of the country. Type ‘O’ was responsible for all of the outbreaks. In 2008 a total of 11 outbreaks of FMD occurred in 6 State and Divisions. Unfortunately there have been FMD outbreaks in buffaloes in Cyclone Nargis affected area. A total of 325 cattle and buffaloes were infected by FMD virus type ‘O’.

In 2009, there were 21 in 9 States in Divisions. In January–February 2010, there were 6 outbreaks in 3 Divisions.

REPORT ON ACHIEVEMENT OF OBJECTIVES OF THE SEAFMD CAMPAIGN:

Component 1: International coordination and support

LBVD, Myanmar is actively participating and supporting the OIE SEA FMD in coordinating the Malaysia-Thailand-Myanmar (MTM) campaign programme for FMD control among ASEAN countries.

JICA Phase II is now implementing the activities in the development of Mandalay regional laboratory and neighboring regions for disease control measures. The project 'Strengthening the National Capacity for the production of FMD vaccines' is now implementing in National FMD Laboratory by the support of IAEA (TC Project MYA/5/015). According to the project document, four staffs had been trained in RRL for two months.

LBVD received the support for HPAI prevention and control through FAO. FAO Avian Influenza Control Programme was established with the support of those projects. This programme is implementing 3 projects. AHI facility of World Bank provided USD 1.3 million for HPAI Prevention and Control and USAID Phase III. AusAID Phase II project is now starting from September 2009 for two years. AusAID will support 1 million Australian $. This Programme received the support until 2011.

Component 2: Programme management, resources and funding

LBVD is the responsible organization to undertake the management of national FMD control programme in Myanmar. The budget allotment for FMD control has been increased year by year by the Government of Myanmar. FMD laboratory produce yearly about 150,000 doses of monovalent FMD vaccine for cattle, buffaloes, sheep, goats and pigs. New quarantine station and Pre-quarantine station have been established in Thilawa and Myeik for exportation of live animals. Responsible for promoting animal health and controlling animal diseases.

In order to follow up the action plan of SEAFMD the Myanmar has gradually participated in the collaboration and co-operation with the neighboring countries in the region and with international agencies. Due to the limited national budget resources for the financial support of FMD control activities; therefore the need for supporting from donor agencies in the form of bi-lateral or regional veterinary services projects is essential.
Component 3: Public Awareness and Communication

LBVD conducted workshops and seminars on animal health and disease control for in-service personnel, farmers and livestock owners. Murdoch University with the support of AusAID, DAFF SPS CBP contributed 4,000 US$ for the public awareness program at Tanintharyi Division (MTM). Targeted audiences are farmers and local traders operating within the MTM Zone. LBVD issues timely notification of FMD through public media such as daily newspapers, radio and television programme especially on the onset of monsoon.

Component 4: Disease Surveillance, Diagnosis, Reporting and Control

In 2009, a total of 21 outbreaks in 9 States and Divisions were occurred, 1,286 cattle and buffaloes were affected. Only 29 samples were received from the field outbreaks and 4 samples had been submitted to RRL Pakchong for confirmation of the results and only type ‘O’ was detected. The samples were sent also to WRL.

Component 5: Policy, Legislation and Standards to Support Disease Control and Zone Establishment

Myanmar is fully participating with other countries in FMD control activities. Animal Health and Development Law enacted in 1993 and in 1999 rules and regulations was issued to exercise the law. Now. This law was reviewed and will make amendment for the food safety and veterinary public health.

Malaysia - Thailand - Myanmar (MTM) Peninsular Campaign for FMD Freedom

Myanmar hosted the 10th Meeting of the MTM Peninsular Campaign for FMD Freedom and Seminar on OIE Standard for Veterinary services held on June 2009 at Yangon.

Component 6: Regional Research and Technology Transfer

LBVD has supported the research and collaboration with international organizations. Dr B.C. Verin visited Myanmar for the research on field investigation of the previous and current FMD outbreaks areas in September 2008 and April 2009 and November 2009. She collected each 221 samples of blood, saliva and probang samples from the buffaloes in 2008, 169 samples in 2009 from Ayeyarwaddy and Yangon Divisions and 100 samples from Magway Division. Dr Polly Cocks visited to conduct a field study in Myanmar on the social networks of livestock of marketing chains & animal movements and a feasibility study for establishing an FMD zone at Central Myanmar.

Component 7: Livestock Sector Development Including Private Sector Integration

Myanmar Livestock Federation (MLF) is represented by livestock owners, producers, livestock traders at central, states and Divisions, Districts and up to townships level. Under the control of MLF, swine producer association, dairy farm association, animal health product association and milk product association are organized. The activities are included reporting the occurrence of FMD as well as sample submission to FMD laboratory. The 7 livestock zones were established in 3 townships near Naypyitaw. The area is about 6,733 Acres and dairy cattle, sheep, goat and poultry are farming in these zones.

Component 8: Monitoring and Evaluation

The LBVD monitors all disease control programme including FMD and new emerging diseases. FMD laboratory submitted the monthly report to OIE and country report to annual meeting of OIE Sub-Commission. LBVD submits technical and inspection teams throughout the country to check the disease control programme. LBVD evaluation meeting is held in every four months interval and annual meeting is held at the end of the year to plan the strategies for the next year.
Appendix XI

Country Report of the Philippines

Executive Summary (March 2009-March 2010)

The FMD Eradication Project (GCP/PHI/049/AUL) formally ended last 30 June 2009, 51 months into attaining and maintaining a zero case scenario in Luzon while maintaining the Office International des Epizooties (OIE) recognition of the islands of Mindanao, Visayas, Palawan and Masbate as FMD Free Zones without Vaccination.

This is the period where technicalities ranging from the concerns on the mixing of vaccinated and unvaccinated animals as well insufficient vaccination coverage have been a significant constraint in the country's attempt for OIE recognition of Luzon’s three zones as "FMD Free Zone without Vaccination" (Zones 1 and 3) and "FMD Free Zone with Vaccination" (Zone 2).

From 15 to 21 June 2009, a team of OIE experts visited the Philippines to provide assistance in the OIE application of Luzon as part of the commitment made by the OIE Director General to ensure the approval of Luzon’s application in the OIE General Assembly in December 2009. Upon the evaluation of the OIE mission, it was recommended that Luzon keep its three zones and apply them as FMD Free without Vaccination with the appreciation that Zone 2 will comply with the 12 month non-vaccinating period prescribed by the OIE Terrestrial Animal Health Code and provide documentations indicating the last FMD vaccination conducted in the area.

This situation led to the consultation with industry stakeholders to address the concern and agreed on the shifting of Luzon’s OIE application to consider all areas as FMD Free Zones without Vaccination. A massive campaign for vaccination withdrawal in Zone 2 was fully supported by backyard and commercial hog farmers to give way for Luzon’s new application. The application for the recognition of OIE of Luzon’s three (3) Zones as FMD Free Zones without Vaccination has been formally submitted in December 2009 and is currently undergoing deliberation by the OIE.

As part of the tail-end effort to intensify and institutionalize these activities, two Letters of Agreement (LOAs) have been approved by the Food and Agriculture Organization (FAO): 1. To intensify surveillance activities at the onset of the withdrawal of vaccination of Luzon and the conduct of FMD Preparedness Exercises among frontline personnel; and 2. The Development of FMD-IMS to a functional national reporting system database (Philippine-Animal Health Information System/ Phil-AHIS) in the four pilot regions (Regions 1, 3, 8 and 9).

Component 1. International Coordination and Support

In view of the termination of the FMD Eradication Project last 30 June 2009, the remaining funds were entered into two LOAs between the Bureau of Animal Industry (BAI) and the Food and Agriculture Organization (FAO) to continue activities centered on intensified disease surveillance in Luzon and the deployment of a functional database system which are described as follows:

1. Letter of Agreement on the Development and Piloting of the Foot and Mouth Disease Information Management System (FMD-IMS) in four regions in the Philippines

The Philippine Animal Health Information System (Phil-AHIS), a migration from the FMD-IMS was institutionalized to further ensure the submission of prompt and correct data for FMD and other animal diseases. The system would provide quick access of data in the event of an incursion and assist in the planning of animal disease control activities. Capacity building workshops have been conducted to equip the Regional and Provincial personnel from the selected pilot regions with the technology and capability of on-line reporting.
Among the intended outputs of the program are the following:

A. Development of FMD-IMS to a functional national reporting system database (Phil-AHIS) in the four pilot regions (Regions 1, 3, 8 and 9)
B. Launching/piloting of electronic/web-based reporting system in the pilot areas;
C. Training of field and laboratory personnel in the use and maintenance of the system and provision of administrative and other miscellaneous support during the training
D. Provide the necessary training equipment

2. Letter of Agreement on the Conduct of Intensive Surveillance Activities at the Onset of Vaccination Withdrawal for Luzon and conduct of Comprehensive Preparedness Exercises

To validate the pullout of vaccination activities in Zone 2, intensified surveillance activities have been made through the conduct of risk-based serosurveillance and slaughterhouse serosurveillance on top of the submission for routine serosurveillance and negative monitoring reports. This is in line with all efforts being done to ensure that vaccination pullout has been carried out and at the same time, an early detection system is in place should an incursion recur. Intended outputs for the surveillance of Luzon would be centered on the following:

A. Designing a complementary monitoring system at levels of the critical pathway to ensure absence of the FMD virus and put in place a system that will allow early detection of any re-introduction or incursions
B. Re-orientation of all stake holders from a control/eradication mode to a maintenance/sustainability mode with emphasis to early warning/preparedness program
C. Conduct preparedness/simulation exercises to assess capacity of the different stakeholder group and recommend necessary intervention.
D. Enhance and package existing Simulation Module for FMD

The Philippines has been an active member of the OIE-SEAFMD Campaign attending to Sub-Commission Meetings pertaining to FMD Control and Eradication in line with the SEAFMD 2020 Roadmap of FMD freedom.

Component 2. Programme Management, Resources and Funding

The National FMD Task Force (NFMDTF) operates on an established structure of networking with other government agencies such as Dept. of Agriculture Regional Field Units (DARFUs), Local Government Units (municipal/provincial) with BAI- NFMDTF staff assigned to the different regions liaising with FMD coordinators (usually Veterinary Quarantine Officers) in the regions. These regional FMD coordinators then oversee the activities in their respective regions to ensure that the program is cascaded to the grassroots level through the Provincial and City Veterinary Offices, allied agencies such as the National Meat inspection Service (NMIS), public information offices and the Philippine National Police (PNP).

As the FMD Eradication Project formally ended last June 2009, the NFMDTF currently operates on funding from the two LoAs entered with FAO with activities covering the intensified surveillance of Luzon following the pullout of its FMD vaccination activities and the deployment of the Phil-AHIS program as the national animal health reporting system.

The National Government also provides regular funding support through the DA which allots budget to BAI and the different DARFUs to conduct their respective FMD eradication/maintenance activities based on the work plan they submitted to the NFMDTF. The fund, which is under Regular Funds and the Ginintuang Masaganang Ani (GMA) program (special funds) of the DA is directly transferred to the 15 DARFUs to serve as their operational expenses. FMD remains a priority program of the government.

Component 3. Public Awareness and Communication

As brought about by the developments in the country’s FMD status, Public Awareness activities have shifted its approach focusing more on the implications of FMD freedom and the utter need to protect the gains achieved by the FMD Eradication Campaign. Among the activities conducted were the Risk and Crisis Communication Workshops for Field Personnel and Implementers in the different regions of Luzon in line with the pullout of vaccination activities in the area. The module on Risk and Crisis Communication has been integrated to the FMD Emergency Preparedness Programme.
An Impact Assessment of FMD Media Campaigns in the FMD Eradication Program was conducted to gauge the effectiveness of the materials used to entice support for the campaign. This was achieved by conducting surveys in all the regions regarding their depth of knowledge for FMD, its control and prevention.

Super Pig, the NFMDTF official mascot of the NFMDTF continues to grace public events and conduct market visits in the advocacy for the consumer’s right of access to clean and wholesome meat. An audio visual production on the advocacy of clean and safe meat was produced with Secretary of Agriculture, Atty. Arthur Yap enticing the public to buy only quality meat that passed through the government’s ante and post mortem inspection.

Aside from the Super Pig sorties, the NFMDTF also installed a number of large signages in strategic areas to inform travelers at the ports not to bring prohibited meat and meat products from Luzon to OIE recognized FMD Free Areas without Vaccination. Additional tarpaulins were also installed along the highways in the provinces in Luzon and air/seaports in Visayas and Mindanao.

FMD briefings are regularly being conducted to livestock traders as part of the requirement of the BAI Marketing Development Division (BAI-MDD) before the issuance of their Livestock Handler’s License. The seminar reminds the traders of their responsibility in the control and prevention of FMD through reporting of FMD suspect cases and proper cleaning and disinfection of their transport carriers.

**Component 4. Disease Surveillance, Diagnosis Reporting and Control**

Elimination of clinical cases has been achieved particularly in the areas of Regions III and IV including NCR where FMD was previously reported. To date, the Philippines has maintained zero incidence of FMD for almost 51 months since the last reported outbreak in a slaughterhouse in Quezon Province (Region IV) on 28 December 2005.

To substantiate FMD Freedom, intensified disease monitoring and surveillance was conducted through documentation of negative monitoring reports, negative incidence reports and slaughterhouse monitoring reports which are submitted monthly by the livestock inspectors to their respective city and provincial veterinary offices.

Serosurveillance is also continuously done twice a year per island or island province in the OIE recognized FMD Free Areas of Visayas, Palawan, Masbate and from each region in Mindanao with 90 samples (30-Swine, 30-Large Ruminant, 30- Small Ruminant) submitted per collection.

The BAI FMD Laboratory has tested a total number of 7,533 samples submitted for serosurveillance as of this time.

To validate the pullout of vaccination activities in Zone 2 due to the shift in application status to the OIE, intensified surveillance activities have been made through the conduct of targeted serosurveillance in backyard farms and slaughterhouses on top of the submission for routine serosurveillance and negative monitoring reports. This is in line with all efforts being done to ensure that vaccination pullout has been carried out and at the same time, an early detection system is in place should an incursion occur. This will be the foundation of serological mapping of Luzon that will provide for the ultimate documentation of freedom.

The FMD-free farm accreditation program as institutionalized by the FMD Task Force in 2002 has helped remarkably in achieving the goal of eliminating clinical cases as it provided a way where local and national technical staff could conduct inspection of the herd and premises of private commercial farms.

**Component 5. Policy, Legislation, and Standards to Support Disease Control and Zone Establishment**

As part of the move to pullout FMD vaccination activities in Luzon, Department of Agriculture Administrative Order No.12, series of 2009 "Withdrawing Vaccination for FMD in the Philippines" was signed to fully implement the withdrawal procedure as part of the application of the three (3) zones of Luzon to the OIE to be recognized as FMD free areas without Vaccination. The Administrative Order imposes the cessation of vaccination activities in Luzon, inventory and turn-over of all FMD vaccines in the market to the National Government, movement management of FMD susceptible animals and the institutionalization of a standard shipping protocol.
Concurrently, capacity building activities such as FMD Preparedness Workshops and FMD Tabletop Simulation Exercises have been conducted in the different regions of Luzon in preparation for the FMD vaccination pullout. Participants of these workshops are livestock inspectors/agricultural technicians which are the frontline field personnel directly engaged in handling disease emergencies.

The FMD Preparedness Workshop is composed of different modules on Outbreak Management, Outbreak Investigation, Destruction and Disposal of condemned animals including Risk and Crisis Communication which are all critical in the proper handling of animal disease outbreaks by the field personnel.

The FMD Tabletop Simulation Exercise (Comprehensive Scenario Induced Simulation Exercise or CSI-SimEx) was developed to gauge the preparedness of the field personnel by inducing scenarios usually encountered in handling FMD outbreaks. CSI-SimEx is an inter-active type as the participants are required to respond to a particular outbreak scenario given to them at the soonest time. Scenario cards are given either to assist in controlling the outbreak or to add complications should the group give a correct measure or inappropriate/premature measure respectively. CSI-SimEx aims to instill to the field personnel the Standard Protocol for handling FMD outbreaks. The NFMDTF conducted the FMD simulation exercise using two modules specifically intended for program implementers and field personnel respectively.

Quarantine Network Meetings are regularly conducted in the different regions to discuss issues and concerns pertaining to livestock shipment and documentation. This also provides the venue for exchanging insights in the operation of Veterinary Quarantine Checkpoints. Rebriefing Workshops for quarantine guards to update them of the current guidelines for livestock shipment are regularly conducted in the regions.

A Field Manual for Animal Health Workers is currently being produced to guide the livestock inspectors/agricultural technicians in their routine extension service activities. The manual aims to capacitate field personnel in handling disease emergencies with topics ranging from the clinical signs of priority animal diseases to outbreak management and investigation.

**Component 6. Regional Research and Technology Transfer**

The Head of the FMD Diagnostic Laboratory is actively participating in the international activities to keep abreast with the current technologies and issues discussed in the international community concerning FMD control and eradication. One of which is the 2009 Sub-Regional Workshop of the SEAFMD Laboratory Network held in Pakchong, Thailand wherein a follow up activity on Inter-Laboratory Proficiency Testing was held in October 2009. The activity aims to validate and evaluate laboratory procedures carried out and if diagnostic tests employed such as Indirect Sandwich ELISA, LPB ELISA and NSP ELISA conform to international standards. The Head of the FMD laboratory attended the SEAFMD Laboratory Network Meeting held on 11-12 March 2010 in Laos.

**Component 7. Livestock Sector Development Including Private Sector Integration**

The livestock industry is composed of different stakeholders, namely the cattle and hog farmers who are organized into associations as well as the allied industries such as the traders, drug manufacturers and distributors, slaughterhouse operators and veterinary practitioners. These groups are active participants in different technical working groups created and consulted by the government for policy-making purposes.

The National Advisory Committee for Animal Disease Control and Emergency (NACADCE), composed of representatives from the different stakeholder groups meet regularly on a monthly basis to discuss matters concerning the livestock industry. Created by the Secretary of Agriculture at the height of the foot and mouth disease (FMD) campaign, this committee has been an active partner of the NFMDTF in enjoining the industry towards the eradication of FMD in the country. Likewise, a regional counterpart, the Regional Advisory Committee for Animal Disease Control and Emergency (RAC-ADCE) is also in place in most regions. These committees, at the national and regional level are chaired by the private sector, co-chaired and facilitated by the government.

The National Agriculture and Fisheries Council (NAFC) is also one body where the different livestock group plays a central role. In this council, agriculture concerns are harmonized and approached as one complimenting the other. Supply of corn and other crops and crop by-products in relation to livestock needs is a fine example of concern being tackled in its forum. The council is also chaired by the private sector and facilitated by the government.
During the proposal to withdraw vaccination in Luzon as per recommendations by the OIE Mission in June 2009 to apply the three zones of Luzon as FMD Free Zones without Vaccination, the NFMDTF engaged in massive consultations with stakeholders including the NAC-ADCE, NAFC, Philippine Veterinary Drug Association (PVDA), Philippine College of Swine Practitioners (PCSP), backyard farm cooperatives, different hog and cattle raisers’ organizations, and members of the Academe to come up with a consensus in the decision to pull out vaccination activities in Luzon.

**Component 8. Monitoring and Evaluation**

The NFMDTF is submitting monthly monitoring reports to the OIE-RCU/SEAFMD Campaign in Thailand. Accordingly, LOA Progress Reports are being submitted by the NFMDTF to its partner organization, FAO.

Developments in the program implementation and its activities are also being monitored by the Secretary, the BAI Director as well as the stakeholders (industry players) or the members of the government-industry led organizations. The FMD Task Force always provides updates in every meeting with the livestock sectors, RFUs and LGUs. The task force welcomes recommendations/insights from the stakeholders to help the task force better in the implementation of the activities.
Country Report of Thailand

Introduction

According to the statistics of Department of Livestock Development (DLD), Thailand’s livestock population in 2009 was approximately 0.48 million dairy cattle, 8.59 million beef cattle, 1.38 million buffaloes, 8.53 million pigs and 0.42 million sheep and goats.

Current FMD situation

There were 50 FMD outbreaks in Thailand in 2009. The distributions of outbreak mostly occurred in northern, northeastern and southern regions (3 outbreaks in central, 9 outbreaks in north-eastern, 24 outbreaks in northern and 14 outbreaks in southern part of Thailand).

FMD in Thailand in 2009

<table>
<thead>
<tr>
<th>Type of animals</th>
<th>Susceptible host</th>
<th>Cases</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bovine</td>
<td>18,533</td>
<td>2,406</td>
<td>5</td>
</tr>
<tr>
<td>Buffaloes</td>
<td>1,678</td>
<td>340</td>
<td>0</td>
</tr>
<tr>
<td>Suis</td>
<td>13,207</td>
<td>419</td>
<td>84</td>
</tr>
<tr>
<td>Total</td>
<td>33,418</td>
<td>3,165</td>
<td>89</td>
</tr>
</tbody>
</table>

FMD outbreaks in Thailand in 2009 by type of virus

<table>
<thead>
<tr>
<th>Type of virus</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (%)</td>
<td>9 (18%)</td>
</tr>
<tr>
<td>O (%)</td>
<td>19 (38%)</td>
</tr>
<tr>
<td>Not typed (%)</td>
<td>20 (40%)</td>
</tr>
<tr>
<td>Not sampled</td>
<td>2 (4%)</td>
</tr>
<tr>
<td>Total</td>
<td>50 (100%)</td>
</tr>
</tbody>
</table>

Type O was defined as SEA topotype, Type A was defined as Asia topotype.

Spread of outbreaks

According to the field investigation, animal movement was still a major factors associated with the occurrence of FMD. Animal movements were reported to be associated in 28 outbreaks (56%). There were 5 outbreaks (10%) that could not find sufficient evidence to trace the cause of these outbreaks.

Factors associated with FMD outbreaks in Thailand in 2007

<table>
<thead>
<tr>
<th>Factor</th>
<th>Outbreak</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Animal Movement</td>
<td>28</td>
<td>56</td>
</tr>
<tr>
<td>1.1 General movement</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>1.2 Illegal movement</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>1.3 Movement within province</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>2. Vehicle / Vendor</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>3. Feed stuff</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>4. Slaughterhouse</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>5. Unknown factors</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>
Major epidemiological changes
FMD outbreaks decreased from 52 outbreaks in 2008 to 50 outbreaks in 2009. It was found that in 2009, FMD type O was significantly predominant to type A.

New control measures
1. FMD Contingency Plan is provided to each province for prevention and control of FMD outbreak. The exercise will be conducted at least once a year. Early disease detection and reporting will be improved to strengthen prevention and control operation.

2. National Livestock Identification and Registration System (NID) in being implemented to identify individual animal or to distinguish herd, to strengthen animal health control, to enhance epidemiological outbreak investigation, to identify source of infection, to differentiate the risk factors of the outbreak, to facilitate traceability and to establish consumer’s confidence on food safety and market accession. The National Livestock Identification and Registration System is a supportive measure for effective disease prevention and control operation. Ear tag in red, yellow and green were applied in targeted area before expanding to countrywide the next step. Red ear tag will be used for imported animal whilst yellow one will be used in normal zone and green one will be used in southern and eastern part of the country which are the area approaching for FMD free zone. Currently, more than 90% of cattle in Region 2 were ear-tagged and 70% of which recorded in on-line registration system.

3. Animal certificate has been given to the owner of animal when vaccination has been done. Animal certificate will provide identity number, history of owner, record of vaccination; etc. Animal certificate could be transferred to the new owner if it was purchased. Record of animal identification number is being kept in computerization system and the officer could access them through its website.

FMD control activities during the year 2009 can be summarized according to the 8 components of SEAFMD strategy plan as follows:

Component 1. International co-ordination and support

One of the effective ways to control FMD in the region is to have an international collaboration and support continuously at both bilateral and multilateral level. The activities under these cooperation projects in year 2009 were as follows:

GMS
Department of Livestock Development conducted training course of animal movement and livestock identification system in 2009 for GMS member countries. The objectives of this course is to share knowledge and experience of managing animal movement control in this region with using livestock identification system such as ear tag, livestock identification card, computerization system to support and control animal movement.

JICA
Regional Technical Cooperation Project for Animal Disease Control among Cambodia, Laos, Malaysia, Myanmar, Thailand and Vietnam (JICA ADC Project Phase 2) lasts from 13 February 2008 to 12 February 2011. There were several courses conducted in Thailand in 2009 under this project such as:

1. JICA/DLD Practical Training on Animal Movement Control and Quarantine in Thailand. This training was set up for veterinary who works in Animal Quarantine field. They could learn about system of AQS Thailand such as Chiang Mai AQS, Suvarnabhumi AQS and etc.

2. Regional Epidemiology Study Model Workshop. This training was conducted for Thai Epi-Team, Japanese Epi expert and Epi expert from member countries shared their knowledge and adapt the other knowledge with their countries.

3. Regional Workshop and Study Visit on Animal Movement: Harmonizing Animal Movement System. This training was conducted for most of the participants who are high level officers to discuss animal movement protocol. The important thing that we got from this meeting is Joint Statement among member countries.

4. Regional Training Course on Brucellosis Diagnosis. Two Trainees from Myanmar practiced in NIAH about Brucellosis Diagnosis
**Bilateral Cooperation**

**Thailand-Laos**
The 8th Joint Lao PDR – Thailand Livestock Development Committee was held on 13-14 August 2009 in Luangprabang, Laos. Both sides considered on cooperation on animal health and animal production and also endorsed on animal movement protocol across the border.

**Thailand-Cambodia**
The 7th Bilateral Meeting on Cooperation on Animal Health Development between Cambodia and Thailand was held on 30-31 July 2009 in Bangkok, Thailand. Both side considered on technical cooperation on disease control and animal movement management. List of animal quarantine stations was proposed to be used for exit or entry point for animal movement across the border.

**Component 2. Programme Management, Resources and funding**

Overall fiscal budget in 2009 for FMD was allocated to USD 2.35 million. Thailand has implemented National Livestock Identification System (NID) by using ear tag and computerization system in some provinces in southern region such as Chumporn province, eastern region and north-eastern region. The target of this programme is also done in Royal project and beef cattle extension in million household projects. It will expand to the whole country in the next step.

**Component 3. Public Awareness and Communications**

Several materials for public awareness activities have been developed including brochure, poster, sticker and booklets. The materials have been distributed to the target audience according to the strategy. The target audiences were trader, organization, field staffs, farmer and the public. Public awareness activities especially focused on the regions that have the high priority to establish FMD free zone. Moreover, training livestock volunteer were conducted for sharing concepts of FMD prevention, vaccination and surveillance.

Broadcasting the knowledge to prevent FMD and vaccination campaign were conducted on radio, television and also in webpage. Manual for farmer how to vaccinate animals was published and distributed to give basic knowledge on FMD vaccination, how to vaccine their own animal under supervision of DLD’s field staff.

**Component 4. Disease surveillance, diagnosis, reporting and control**

**Disease surveillance**
In 2009, Thailand surveyed the prevalence for FMD by using Nonstructure protein test and monitor antibody titer after vaccination by LP-ELISA twice a year.

**Diagnosis**
1. Specimens and serum samples were received from Cambodia, Laos, Myanmar and Vietnam in 2009, there were 17 samples from Cambodia, the diagnostic result was type O =1 and 6 samples were no virus detected (NVD). For Laos, 22 samples were diagnosed as type O=17, A = 4 and NVD =1 respectively. For Myanmar, 4 samples were diagnosed as type O. Vietnam, 47 samples were diagnosed as type O = 2, type A = 34 and NVD = 11. Some of those viruses were further investigation by determine r-value and sequencing. The results indicated the phylogenetic tree of 2 samples of FMDV type O from Vietnam was defined as CATHAY topotype, the r-value of this type O virus was 0.83 indicating for good matching to type O Thai vaccine strain O189/87. For type A the phylogenetic tree from Vietnam and Thai were clustered as only one topotype of Asia.

2. A panel of FMD isolation samples from Thailand and SEAFMD countries were submitted to WRL, United Kingdom on 29 April 2009. A total of 28 samples from field outbreaks (from Thailand = 22 samples, Myanmar = 2 and Cambodia = 4) were sent to WRL for diagnostic confirmation and strain characterisation by nucleotide sequencing and r-value.

**Reporting**
After FMD outbreaks, initial report, investigated report, weekly surveillance report and outbreak intervention report were submitted to the FMD center in the headquarter in determined periods.
Component 5. Policy, legislation Standard to support disease control and zone establishment


Establishment of Upper Mekong Commission for FMD Zoning and Animal Movement Management
The 9th meeting of working group on zoning for FMD and Animal Movement management in the upper Mekong Region was held in Hanoi, Vietnam on 20-22 January 2010. The meeting involved field trips to border and visit to animal quarantine station. There are many recommendations arising from the meeting such as revising a comprehensive strategic plan for Upper Mekong zoning. Thailand will offer training course of National Livestock Identification system to member countries.

Establishment of Lower Mekong Commission for FMD Zoning and Animal Movement Management
The 8th Meeting of the Lower Mekong Working Group was held in Ho Chi Minh city, Vietnam. Thailand detailed eastern region (region 2) to be actively involved in Lower Mekong zone approaching for FMD free zone. National Livestock Identification system was mostly cover in cattle and buffalo in this region. Active surveillance was undertaked to analyze for herd immunity after vaccination being done.

Malaysia –Thailand – Myanmar (MTM) Peninsular Campaign for FMD Freedom
Activities have been done to approach FMD free zone in this region. The 10th meeting of Tristate Commission was held in Malaysia. EpiNet group gave technical recommendations to the Tristate commission. Thailand advised to initiate bilateral meeting with Myanmar to discuss animal movement across the border.

Component 6. Regional Research and Technology Transfer

1. As the part of SEAFMD Laboratory Network meeting in Pakchong, Thailand, the first round of Interlaboratory comparison program on antigen typing ELISA and FMD serology test by LP-ELISA and non structural protein (NSP) test has been organised by RRL and OIE RCU. A total of 16 laboratories participated, consisting of 8 FMD laboratories from South East Asia countries (Cambodia, Laos, Malaysia, Myanmar, Philippines, Vietnam both Hanoi and Ho Chi Minh) and 8 Regional Veterinary Diagnostic Centers within Thailand including National Institute of Animal Health (NIAH), Bangkok.

2. As part of OIE/FAO Reference Laboratory Network Meeting, RRL participated in the Reference Laboratory Network Meeting in New Delhi, India on 23-26 November 2010 and in the inter-laboratory comparison on vaccine matching test and Proficiency testing on antigen typing test, LP-ELISA and NSPs test that was organised by WRL under this project.

3. Training and technology transfer on FMD diagnostic techniques to member countries as this follow:
   3.1. Trainee from Myanmar Dr Cho Cho Htun from Livestock Breeding and Veterinary Department, Myanmar, received training on FMD diagnosis under IAEA project, on 18-29 May 2009.
   3.2. Three trainees from Livestock and fishery section, Champasak province received training on FMD diagnosis under TICA –Lao project from 28 June to 12 July 2009.
   3.3. Four trainees from Myanmar, Ni Ni Aung, Ms Myint Han, Min Sun and Ms Htet Ma Ma Phyoe, Livestock Breeding and Veterinary Department, Myanmar, received training on FMD diagnosis under IAEA project, from 19 October to 12 December 2009.

Component 7. Livestock Sector Development including private sector integration

Livestock sector could be developed and encouraged through activities such as to improve farming biosecurity, to increase cattle raising population in the FMD free zone for self – sufficiency, to reduce animals moving from outside into Region 2, to register and train farmers and traders on disease surveillance and networking and to expand market accession.

Component 8. Monitoring and Evaluation

The DLD monitors all disease control program including FMD via reporting system of Division of Planning. However, epidemiological data including serological survey after vaccination campaign will be collected and collated separately by Bureau of Disease Control and Veterinary Services. The annual review of the FMD control activities will be conducted to evaluate progress of the plan, subjected to formulation of the detailed work plan and budget for the next year.
Appendix XIII

Country Report of Vietnam

Abstract:

In 2009, FMD outbreaks were reported from provinces in the Northern Central and Central Coastal area, Central Highlands and mountain provinces of the whole country; one outbreak in the South. FMDV serotype O remains the dominating while FMDV serotype A is found in 5 provinces, firstly from outbreaks in one province in the Northern Central parts and threatening other areas. Though FMD serotype Asia 1 was not detected during 2009 and early 2010.

FMD status:

In 2009, FMD outbreaks were reported from provinces in the the North Central and Central Coastal area, Central Highlands and mountain provinces in the country, FMD outbreak had been found in one province in the South. Totally, FMD outbreaks occurred in 229 communes, 87 districts of 27 provinces. Number of infected animals was 8,360 cases (7,861 cattle and buffaloes and of 499 pigs) which 432 cattle and buffaloes; 429 pigs were died and/or destroyed for control purpose. FMDV serotype O were dominating in provinces in the North while FMDV serotype A were found in the Northern mountain (Son La, Bac Giang and Ha Giang), Central Highlands (Kon tum) and Mekong River Delta province (Long An). FMD outbreaks had broadly spreaded, epi-curve peak to 91 FMD outbreaks in September 2009, the herd had been not normally vaccinated.

Temporal distribution of outbreaks by month in 2009
Dac Lac, Kon tum, Nghe An, Ha Giang, Quang Ninh and Quang Ngai have been the most heavily affected by the disease with entrenched infection.

During the first two months of 2010, FMD outbreaks occurred in 65 infected communes, 27 districts of 11 provinces. A total of 2,619 buffaloes and 720 cattle; 603 pigs were found infected and 96 of them were destroyed. Spatially, again, outbreaks were concentrated in provinces in the Northern mountain and Northern Central, Central Highlands parts of the country; only 1 FMDV serotype O outbreak was reported from a province in the South (Long An). FMDV serotype O continues to dominate in most of outbreaks with some caused by FMDV serotype A.

Report on achievement of objectives of the SEAFMD Campaign:

Component 1: International co-ordination and support

In 2009, Viet Nam had made remarkable contributions to the activity of international coordination and support for SEAFMD Campaign such as co-organising the 15th meeting of the OIE sub-commission for FMD in South East Asia which was held in Sabah, Malaysia on 12 March 2009; co-organised 9th Meeting of the Upper Mekong Working Group for Foot and Mouth Disease and Animal Movement Management, Hanoi, 20-22 January 2010.

Moreover, Viet Nam has been taken part in all international initiatives on disease control and prevention in the region as followings:

- Continue the implementation of the AusAID-funded, implemented by CARD project (CARD 072/04VIE) on FMD which aims at conducting intensive surveillance activities in 10 pilot provinces and technology transfer for FMD diagnostic techniques; final project report available
- The ACIAR project: a one-year extension of the project is foreseen but approval is pending.
- National Coordinator participated into the 15th Meeting of the OIE Sub-commission in Malaysia
- The study in two Red River Delta provinces with financial support from SEAFMD and the New Zealand Ministry of Agriculture and Forestry.
- 8th LMWG Meeting held from 23 to 25 November 2009 in HCMC, Vietnam.
Component 2: Programme Management, Resources and funding

- National Program for FMD control and eradication for the period of 2006-2010 has been revised with the total amount of VND 527 billion (~ USD 36 million) from the Government budget.

- Structure of the Program:
  - Headquarters level: DAH Epidemiology Division has been in-charge in executing the project work-plan.
  - Provincial level: Sub-Departments of Animal Health (SDAH).

- The National Steering Committee of the National Program for FMD Control and Eradication meets on a six-monthly basis.

- The Plan for vaccination strategy in National Program for FMD control and eradication in 2010 which was approved on 8 January 2010 will secure the funds and resources for the whole year activities. Annually, the Ministry of Agriculture and Rural Development approved the plan for vaccination strategy in National Program for FMD control and eradication for the period of 2006-2010. The make - decision most vaccines strain selection to be currently used in Vietnam such as monovalent serotype O (strain Manisa; serotype A (strain Malaysia 97; serotype Asia1 (strain Shamir) by DAH Technical Advice Committee.

- FMD Programme Review Meetings were held in South East (Ho Chi Minh city), North Central area (Nghhe An), Northern provinces (Ha Noi), Central Coastal provinces (Dac Lac under the chairmanship of a MARD Vice-Minister.

- Review Final Meeting for lesson learnt experiences from National Program for FMD control and eradication in 4 years (2006-2009) conducted on 18 December 2009 under the chairmanship of a MARD Vice-Minister.

Component 3: Public Awareness and Communications

During the reporting period, a number of public awareness raising activities have been conducted such as the printing of small booklets and leaflets on FMD control and prevention.

No study conducted to measure the impact of such activities yet.

No public awareness & communication program undertook targeting traders.

There is a strong need to improve public awareness and communications policies and activities.

Component 4: Disease surveillance, diagnosis, reporting and control

FMD reporting system: TADinfo is in place although the paper-based report system (paper reports sent by fax/mail) is still co-existing.

- less than 70% of FMD suspected outbreaks were properly investigated ;
- time lag from the on-set of the disease and the notification to the headquarters is about 3-4 days.

No big constraints using ARAHIS/WAHIS Regional Core system in sending on-line FMD reports to SEAFMD.

Capability and capacity of national laboratories on FMD diagnosis in Viet Nam had been improved remarkably: during the 1st half of 2009: about 3,000 blood samples and 120 tissue samples were tested by all labs.

The national post-vaccination monitoring programme was designed to monitor FMD vaccination response nationwide and the first round for 2009 has just been completed with 1,800 serum samples collected from 60 randomly selected communes over the country to monitor vaccination response (~ 7,200 tests); protective immunity ranges between 52% and 76%.

Training on outbreak investigations were conducted.

One staff member participated into Quantum GIS training course in Chiang Mai.
It is encouraging that number of provinces using TADinfo (a web-based reporting system provided by FAO) to submit outbreak data is increased.

**Component 5: Policy, legislation and standards to support disease control and zone establishment**

Pilot FMD free zone in Nam Dinh and Thai Binh provinces.

The Circular No. 22/2009/TT-BNN dated 28 April 2009 provides guidance on requirements for livestock breeds, veterinary inspection of animals used for breeding purposes.

The Circular No.27/2009/TT-BNN dated 28 May 2009 provides guidance on inspection of importation buffaloes and cattle from Lao PDR and Cambodia into Vietnam

Drafting Veterinary Laws: Supports received from FAO and OIE Paris. More technical supports are negotiating.

Roadmap for the Development of the Vietnam Veterinary Services: OIE to complete the PVS Evaluation (aquatic animal health) and to help for conducting the PVS Follow-up (for terrestrial animals)

- Gap Analysis
- Viet Nam shall use these as inputs for the Roadmap development.

**Component 6: Regional research and technology transfer**

- AusAID project (CARD 072/04VIE) and New Zealand aim to strengthen capability of FMD surveillance and control in order to increase national biosecurity.
- The study with financial support from SEAFMD and the New Zealand Ministry of Agriculture and Forestry.

**Component 7: Livestock sector development including private sector integration**

The National Strategy for Animal Production Development up to 2020 was issued by the Government (Decision No. 10/2008/QĐ-TTg dated of 16th January 2008). Of which, animal production is expected to contribute about 32% of the total agricultural GDP. The main strategy is to encourage the development of intensive commercial farming systems; hence, policies will be developed to attract more investment to the sector. Farmers can access to loan with preferential interest rates from many banks.

**Component 8: Monitoring and evaluation**

The National Programme on FMD Control and Eradication, 2006-2010 was partially reviewed and modifications recommended. Vaccine efficacy will be monitored closely to make sure the vaccine strains are perfectly match with the field virus strains.
SEAFMD Roadmap Tools – Executive Overview

PURPOSE

To gain Sub-Commission agreement to the concepts articulated in the following summary paper so that writing of the toolkit can be progressed as a priority issue.

ABSTRACT

This overview sets out the gist or general picture of the tools or package of policies, resources, methods, capabilities, competencies, functions and actions for achieving the objective of the SEAFMD program of regional freedom from FMD by 2020. The overview serves as a “thought experiment” that validates the package of tools as a coherent system that is fit for purpose. Importantly, the package of tools can set the scene for cogent troubleshooting regarding the timeline for FMD freedom in the member countries.

The overview revisits the feasibility of achieving the goals of the SEAFMD Campaign in view of new knowledge since 2007 when the strategy SEAFMD 2020 was published. The assessment is that new knowledge heightens prospects for eliminating the disease and clarifies the benefits flowing from FMD freedom.

Conclusions are that the tools used in the SEAFMD Campaign have been functioning without the need for explanation and clarification by a formal document. However, a formal explanation and document of the tools has value as a contribution to “capacity building and training”, “public awareness and communication”, the engagement of stakeholders and government, the attraction of interest from countries neighboring the region and the reinforcement of a culture of continuous improvement.

Introduction

SEAFMD Roadmap Tools, is seen as a natural and necessary progression from the policy document SEAFMD 2020 – A roadmap for foot and mouth disease freedom with vaccination by 2020 in South-East Asia, which was published in 2007. SEAFMD 2020 provides the roadmap and strategic direction for achieving freedom from foot and mouth disease (FMD) with vaccination for South East Asia by 2020. Roadmap Tools will take the next logical step and provide comprehensive descriptions of the “tools” or package of policies, resources, methods, capabilities, competencies, functions and actions required to achieve the goals of the SEAFMD Campaign.

SEAFMD Roadmap Tools is designed to complement and vitalise the body of knowledge found in the scientific literature in textbooks, journals and so on. By providing summary guidance, signposts and anchor points, SEAFMD Roadmap Tools will assist veterinarians, animal health workers and all interested parties in their continuing quest towards broader, deeper and more effective knowledge about the control of FMD and other transboundary and emerging infectious diseases. Like SEAFMD 2020, SEAFMD Roadmap Tools will not be the last word but should evolve as a living document that embraces new knowledge and reshap es old knowledge in step with growing experience.

The present overview is designed as a prelude to Roadmap Tools. It highlights the central points of each tool and the gist or general picture of the overall package before Roadmap Tools elaborates upon their detail. The purpose is two-fold. First is that while the tools have been operating effectively, the processes for continuous improvement can be made more obvious by the exercise of preparing of Roadmap Tools. Second is that a clear understanding of the Roadmap Tools will reinforce the proposition that FMD freedom in South-East Asia is feasible, that the benefits of FMD freedom far outweigh the costs of eliminating the disease and that there are no opportunity costs. In this regard, SEAFMD 2020 stated that “SEAFMD will falter unless there is strong political support and endorsement at the highest government levels, accompanied by the provision of resources”.

SEAFMD 16th OIE Sub-Commission Meeting, Vientiane, Laos
Some preliminary considerations for roadmap tools

Building on experience

The “tools” for the SEAFMD Campaign form a unified whole and exemplify the notion that the whole is more than the sum of the parts. They derive from consolidated experience and an understanding of FMD. Their implementation will lead to the ultimate elimination of FMD and its causative agent from the region of South-East Asia. They are designed to facilitate the rapid identification of FMD where it occurs, the prevention of its spread, the removal of its sources of infection in animals and the environment, and vaccination to prevent the disease’s progression. The ultimate purpose is to systematically reduce the disease’s range. The tools include progressive zoning, surveillance, emergency planning, vaccine supply, diagnostic capacity, traceability, training and community awareness. Logistics or the supply and servicing of people and resources is crucial throughout the system of tools.

Roadmap Tools intends to collate and share the knowledge of those involved in the SEAFMD Campaign and with experience of each of the tools in operation. The idea is to bring local experience and knowledge to bear on the Roadmap Tools. A merging of local experience with the body of reliable scientific and technical knowledge can act as an ongoing reality check, particularly for logistics, which can depend heavily on local circumstances and local knowledge. Roadmap Tools is intended to reinforce a culture of practical science and to provide a framework for new knowledge about the “tools” that will come from their practical application.

A working culture of continuous improvement

Roadmap Tools will focus on factors that may influence the effective implementation of the package of tools and have an impact on the stated objectives of the SEAFMD Campaign. The ambition is to introduce contemporary business practices such as risk and quality management into the culture and processes of the SEAFMD Campaign, thus enabling continuous improvement in decision-making and continuous improvement in performance. Roadmap Tools reinforces the assessment that elimination of foot and mouth is biologically feasible and evidence-based. The benefits are the removal a critical blockage to development in the livestock sector, a tangible contribution to the alleviation of poverty and a public good legacy in the form of effective veterinary services.

A combination of a risk-based approach and the use of “tools” demonstrated as practicable and effective, is important for mobilising political and public support. The combination will open the tools to improvement based on experience and adapt them to changing circumstances. In doing so, the certainty of success of the SEAFMD Campaign will be enhanced and there is further reassurance that investment in the elimination of FMD represents a wise allocation of resources.

Freedom from FMD is achievable with the Roadmap Tools

Elimination versus eradication

No advances in science since SEAFMD 2020 was written in 2007 contradict the proposition that FMD freedom is scientifically feasible for countries and regions such as those constituting South East Asia. Freedom from FMD refers to the elimination and not the eradication of the disease and its agent. Eradication\(^4\) is the permanent reduction to zero of the worldwide incidence of infection caused by a specific agent as a result of deliberate efforts. Eradication implies that intervention measures are no longer needed. By contrast, elimination is the reduction to zero of the incidence of infection caused by a specific agent in defined geographic areas as a result of deliberate efforts. Elimination implies that continued measures to prevent the reestablishment of transmission will be required.

Impediments to the global eradication such as carrier states are of practical importance in parts of Africa inhabited by the African buffalo (Syncerus caffer). Persistence of FMD virus in reservoirs of wild animals remains an impediment to global eradication where high-risk animals (various species of antelopes, goats, deer, camelids etc) occur in high concentrations, particularly in grazing environments, and share waterholes and so on with domestic ruminants.

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\(^4\) This terminology for “eradication” versus “elimination” comes from the Carter Center:
http://www.cartercenter.org/health/itfde/program_definition.html
The operating principles for FMD control and elimination are sound.

The basic principles for FMD control and elimination and for regional coordination as set out in SEAFMD 2020 are based on good sense and valid reasoning and form a reliable foundation for the Roadmap Tools. A concept map explaining their application is shown in Figure 1.

The principles include:
- Identification of the foci of infection as rapid as possible using an effective surveillance system
- Prevention of infection of susceptible hosts by preventing contact of infected and susceptible herds through quarantine and movement managements
- Elimination of the source of FMD virus through disinfection and the use of acceptable husbandry methods to prevent infections of susceptible animals by contaminated objects and infected premises
- Increasing herd and animal immunity to FMD by vaccination
- Mobilisation of political and public support for the FMD control/eradication programme through effective communication and public awareness campaigns.

Figure 1: Concept diagram showing how the SEAFMD principles for the control and elimination of FMD harmonise and operate against the disease.
The feasibility of eliminating FMD

Elimination of FMD from countries and regions is assessed as scientifically feasible for two reasons. First, FMD has characteristics that identify simple points for intervention and the application of appropriate control tools (see Figure 1). These attack points connect with the operating principles of the SEAFMD Campaign and make the disease and its causative agent susceptible to extinction. Second, the scientific or theoretical feasibility of eliminating FMD has unequivocal support from historical evidence. FMD has been eliminated from Europe, North America, Japan and Australia. In South-East Asia, FMD has been eradicated in Indonesia in 1986, and in the Philippines in 2006.

The following points from the natural history of FMD are relevant to the disease being a reasonable candidate for elimination and FMD freedom being a valid prospect.

1. The seven types and multiple subtypes of the causative virus are genetically programmed for the life cycle strategy of rapid and highly effective transmission to a succession of new and non-immune hosts. FMD has the reputation of being the most infectious of all viral diseases of animals and humans. However, FMD is a short-lived infection and produces robust and persistent immunity to the strain of virus involved. In South East Asia only 3 serotypes are present – O, A and Asia 1.

2. The presence of multiple types of the FMD virus is evidence for the selection of new variants by host immunity when cycles of infection continue unchecked. Adaptive mechanisms for the evasion of the host immune response do not operate for FMD as they do for certain protozoan parasites and a consideration of the genome of FMD viruses makes the existence of such mechanisms implausible. There is no experimental evidence that sheep, cattle, pigs, or other ungulates in the asymptomatic carrier state can transmit virus to uninfected animals. The African Buffalo is an exception. Transmission to cattle from individuals of this species during the carrier state has been demonstrated.

3. Immunity against a given FMD variant is strong and long lasting and can be reproduced by vaccination. Effective vaccines are currently available and can be used to eliminate FMD. The development of better vaccines will facilitate the achievement of FMD. The presence of multiple variants of the FMD virus supports the case for eliminating the disease and removing the source of new variants of the virus.

4. The FMD virus is unlike organisms such as the anthrax bacillus or some nematode pathogens and does not operate specific adaptations for long survival outside the host. Survival of virus outside the host is not an impediment to the elimination of FMD. Survival of virus in the environment depends upon physical and chemical factors and is favoured by low temperature and high humidity. The virus survives drying but may persist for days to weeks in organic matter under moist and cool temperatures. Viral survival time in the environment will be treated in Roadmap Tools.

5. FMD transmits by direct contact between infected and susceptible animals or direct contact between susceptible animals and contaminated inanimate objects (hands, footwear, clothing, vehicles, etc.). FMD has no insect vector, which would complicate its elimination.

6. The clinical signs of FMD are well known and sufficiently obvious to allow a reasonable tentative diagnosis in the field and the immediate commencement of control measures. Laboratory diagnosis is important for identifying the strain of virus involved in an outbreak and selecting the appropriate vaccine.

Freedom from FMD is beneficial

The benefits of FMD freedom have become more apparent since the roadmap, SEAFMD 2020, was written in 2007. The real impacts of the disease are better known and economic analyses have quantified the cost-benefit relationships.

FMD is described as a highly contagious disease that affects primarily cloven-hooved animals, often with serious economic consequences. The disease rarely causes death of mature animals but can result in dramatic decreases in productivity. “Dramatic decreases in productivity” is the key and explains the full seriousness of FMD that is not necessarily conveyed by clinical descriptions of the disease.

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This section uses terminology obtained from the Carter Center regarding the eradicability of disease: http://www.cartercenter.org/health/itfde/program_definition.html
Where FMD is endemic, animal production systems are locked in to operating far below their potential. Resources are underutilized and alleviation of poverty is impeded. FMD can be regarded as a keystone disease that has a disproportionate effect on animal production systems. Its continuing presence in endemic areas affects the lifecycle fitness of animals and amplifies the impact of other endemic diseases and environmental challenges. Its removal opens the opportunity for a more systematic approach to other endemic diseases and environmental challenges.

Where there is FMD freedom, animal production systems are exposed to dislocation when outbreaks of FMD occur. Freedom from FMD has benefits for the future because it will remove a risk to FMD free areas that will be intensified when transportation systems are improved and the movement of people and animals increases. Prevention and control of FMD at its source is mutually beneficial.

As for economic benefits from FMD control and freedom, reports from OIE, World Bank and FAO since 2007 signal clearly that removal of destabilizing factors such as FMD can allow measured development in the livestock sector, benefiting the environment and strengthening global food security into the future. Specific studies comparing FMD prevention costs with outbreak costs are unanimous that significant benefits flow from improved prevention and control measures. Eradication programs for FMD in some countries of South-East Asia have been assessed to provide benefits in terms of improved trade and market access that are several times worth the investment.

**A description of the overall package of Roadmap Tools**

The tools referred to in *SEAFMD 2020* (2007) are the “integrated mix of policies and actions, involving progressive zoning, surveillance, emergency planning, vaccine supply, diagnostic capacity, traceability, training and community awareness” required to achieve FMD freedom with vaccination for Southeast Asia by the Year 2020. *SEAFMD 2020* also stated that: “the technology needed to control and eradicate FMD is available - precise diagnostic techniques, effective vaccines, and epidemiological tools for good surveillance”.

The tools, technology and the competences and capabilities associated with them were among the “crucial inputs” identified in the *SEAFMD 2020*. They were in mind during Phase 1 (1997-2001) when the broad FMD situation was evaluated and the needs of the campaign for FMD freedom were identified. The tools have been employed and subjected to continual improvement during Phase 2 (2001-2005). They are critical to Phase 3 (2006-2010) as the campaign manages the details important to achieving its objectives.

SEAFMD 2020 also stated that tools and associated competencies and capabilities will have “broad-based benefits for general animal health services in the region that extend beyond FMD” and will “support economic development and protect human health in a sustainable manner”. The SEAFMD approach can be regarded as a “relevant model for the prevention and control of other serious diseases”. These statements make it clear that the tools should be clearly spelled out and subjected to ongoing care and attention as to their best performance.

The first step in elucidating the tools is to explore how they connect one with another to make a functional and effective system. The tools are (1) risk analysis, (2) situational analysis, (3) surveillance and epidemiology network, (4) outbreak investigation, (5) diagnosis and laboratory network, (5) vaccination, (6) animal movement management, (7) emergency preparedness and contingency planning, (8) legislation, (9) public awareness and communications, (10) standards, definitions and rules, (11) zoning, (12) management (including governance, capacity building and training), and (13) socio-economic analysis. Figure 2 classifies them according to their broad functions in:

- Disease control at the frontline
- Operational support
- Design, planning and intelligence support
- Regulatory support
- Command and control.

Logistics or the supply and servicing of people and resources is crucial throughout the system.

Figure 2 shows that the system for the SEAFMD Campaign is generic and can present as a “relevant model for the prevention and control of other serious diseases: for example, highly pathogenic avian influenza.”

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6 In ecology, a keystone species is one that plays a fundamental role in maintaining the plants and animals in an ecosystem. A keystone pathogen can be seen as one playing a dominant role in maintaining dysfunction.
Figure 2: Concept diagram showing how the Road Map tools classify according to their direct disease control, operational support, design, planning and intelligence support, regulatory support, or command and control functions and create a coherent system against FMD. Logistics or the supply and servicing of people and resources is important throughout the system.
Tools for control and elimination of FMD

The tools in this category come into play once foci of FMD infection have been detected. They connect logically with the general principles for the control and elimination of FMD set out in SEAFMD 2020.

- **Animal movement management**
  Animal movement management is essential for the “prevention of infection of susceptible hosts by preventing contact of infected and susceptible herds through quarantine and movement managements”. It is required to prevent the entry of FMD into controlled areas and to stop the spread of FMD during outbreaks. SEAFMD 2020 states: “Animal movement management has been considered the predominant cause of FMD outbreaks in all other zones”.

- **Bio-security (Hygiene) and sanitary measures**
  Bio-security (Hygiene) and sanitary measures are necessary for the “elimination of the source of FMD virus through disinfection and the use of acceptable husbandry methods to prevent infections of susceptible animals by contaminated objects and infected premises”.

- **Vaccination**
  SEAFMD states: “Vaccination is another key tool in support of FMD control”. Vaccination has the objective of increasing herd and animal immunity to FMD. It acts to remove the ecological niche for the FMD virus. However, there are some important considerations such as the quality and availability of vaccines, the level of coverage, the correct vaccine against circulating FMD strains and the level of protection (80-90% protection is the norm).

Tools for operations against FMD

If the SEAFMD Campaign’s goal of regional freedom from FMD is to be realised, foci of FMD infection must be identified as rapidly as possible and wherever they occur (Surveillance and Epidemiology Network). The circumstances of the infection must be determined to understand where the infection may have come from and where it may progress (Outbreak Investigation). A reliable laboratory diagnosis of the strain of virus involved is necessary for selecting the correct vaccine (Diagnostic Laboratory Network).

- **Surveillance and epidemiology network**
  SEAFMD 2020 states that: “A sound surveillance system is the key tool that provides guidance in the overall disease control strategy. It is the backbone for early detection and response. Surveillance is the method for determining the FMD status of a zone and regular surveillance surveys and prompt follow-up analysis need to be undertaken in order to meet OIE standards for each zone, except of course for the infected zone”.

- **Outbreak investigation**
  The generic approach to investigating disease outbreaks can be fitted to FMD. Outbreak investigation seeks to verify the diagnosis, confirm the outbreak, obtain a comprehensive history of the animals involved (e.g. for trace-back and trace-forward), and an assessment of the circumstances in which the outbreak has occurred. The immediate purpose is to initiate immediate control purposes and to communicate comprehensive findings about the outbreak for concerted action by the system as a whole.

- **Diagnostic and laboratory network**
  Diagnosis of FMD is incomplete and unless strains of virus are characterised for the correct selection of vaccine. Epidemiological surveillance for FMD, emergency preparedness and response and risk analysis are all severely handicapped, in some instances paralysed, without ongoing characterisation of virus. SEAFMD 2020 states: “The FMD Regional Reference Laboratory (RRL) in Pakchong, Thailand, provides the backbone and sets standards for the considerable laboratory inputs required in the SEAFMD Campaign. The RRL has a major task in assisting the quality control of diagnostic tests to back up the campaign. It also provides links to the World Reference Laboratory”.

Tools for design, planning and intelligence support

- **Risk analysis**
  
  *SEAFMD 2020* states: “Risk analysis comprises hazard identification, hazard characterization, risk assessment, risk management and risk communication. The general SEAFMD approach is based on a risk analysis framework”.  
  
  *SEAFMD 2020* also states: “Phase 3 will see greater emphasis on risk assessment which will assist member countries to identify critical areas for focused intervention. This will help them to make sound decisions. It is important to identify risk factors in the spread of FMD. The most economical and feasible way of managing these risks is to prevent the entry of FMD into the control zones. Risk analysis will be used to aid member countries to develop strategic policies to support FMD prevention and control”.

- **Emergency preparedness and contingency planning**
  
  *SEAFMD 2020* states: “Contingency planning on emergency preparedness activities are key animal health activities. Plans should be fairly simple, capable of implementation and developed by animal health staff so that they are not only familiar with the content but have ‘ownership’ of the ideas. Plans should be tested regularly and updated as necessary”.

- **Situational analysis**
  
  Situational analysis provides information from the operating environment for use in risk analysis and then emergency preparedness and contingency planning. It is important for translating local information into the larger scheme of the SEAFMD Campaign.

- **Socio-economic analysis**
  
  Textbook descriptions do not capture the repercussions of the FMD as a “keystone” disease, which affects the lifetime health and performance of animals. Nor do they capture the large indirect effects of the disease on communities and economies.

  *SEAFMD 2020* points to both direct and indirect effects of FMD:
  
  “FMD has major negative impacts on people’s livelihoods such as the reduction of draught power and transport in less developed countries and losses, particularly in pigs, vital to village cash income.”
  
  “Chronic illness can seriously affect productivity” and
  
  “[FMD] will prevent livestock development” and “hinder economic development”.

Tools for regulatory support

FMD is a disease where public health imperatives apply. The disease spreads rapidly in the environment and requires a communal effort for its control. Failures to notify the disease or to take action against it or attempts to conceal it will affect other livestock producers and society as a whole. FMD control measures require coercive support from legislation.

In reference standards definitions and rules *SEAFMD 2020* states: “Clear, achievable sets of defined systems and activities are powerful tools that are essential for an integrated SEAFMD Campaign. The Campaign has established a working set of minimum standards, definitions and rules (SDR) for zoning that are practical and clearly explain what has to be done.

- **Zoning, standards, definitions and rules**
  
  Progressive zoning is the key to the control and elimination of FMD and requires specific zoning strategies supported by standards, definitions and rule (SDR).

  *SEAFMD 2020* points to “a working set of minimum standards, definitions and rules (SDR) for zoning that are practical and clearly explain what has to be done. The surveillance standards and criteria to upgrade from one zone to another are described”.

- **Legislation**
  
  Legislation will be ineffective if it allows for exemptions for the obligation to respond to FMD. *SEAFMD 2020* states: “All members have legislation that addresses disease control. However, in the light of experience within and beyond the region, some legislation will need to be updated to provide a more effective tool for the FMD campaign”.

SEAFMD 16th OIE Sub-Commission Meeting, Vientiane, Laos
Tools for command and control

- **Leadership, management and governance**
  The tools of leadership management and governance are obvious for the smooth running of the SEAFMD Campaign and the achievement of its goals. However, there are other drivers including:
  - The attraction of support and endorsement at the highest government levels and the provision of funds.
  - The garnering of high-level political and policy support for the drafting of model legislation in countries where the legislation is deficient.
  - The mobilisation of stakeholder and public support.
  - Outreach beyond the SEAFMD region to neighbouring countries where FMD is endemic for the adoption of common policies on FMD prevention and control, closer working relationships in the sharing of information, the identification of weaknesses in animal health service delivery and the correction of deficiencies.

- **Capacity building and training**
  Capacity building and training are inseparable. Capacity building in countries to strengthen animal health services in a sustainable manner is a key policy objective of the OIE. **SEAFMD 2020** states that capacity building by the SEAFMD Campaign during Phase 3 will “lead to significant animal health improvements for all major transboundary diseases in the region” and will “promote public and animal health and economic development”.
  **SEAFMD 2020** states that “training is another essential tool for the successful outcome of the SEAFMD Campaign by 2020”. “All components of the strategy require training”.

- **Public awareness and communication**
  Recent opinions emphasise that good communication requires people with technical expertise taking the initiative in “framing” or ordering central ideas and explaining likely points of contention on issues such as disease outbreaks. **SEAFMD 2020** states: “Public awareness and communication require all the support and tools available because good communication plays an essential role in achieving a successful outcome. The expansion of the communications network created by the RCU will provide a useful tool for engaging the public and private sectors in the progress of the SEAFMD Campaign”.

**Conclusions**

1. This overview can be considered a thought experiment to validate whether or not the tools that constitute the package of policies, resources, methods, capabilities, competencies, functions and actions hang together as a whole and form a coherent system for achieving the objective of the SEAFMD program of regional freedom from FMD by 2020. The conclusion is that the package is sound and the tools will work effectively as a whole. Importantly, the package of tools can set the scene for cogent troubleshooting regarding the timeline for FMD freedom.

2. The tools involved with the SEAFMD Campaign have been functioning without the need for explanation and clarification by an exercise such as the preparation of a document titled, Roadmap Tools. However, the preparation of Roadmap Tools has value as a contribution to “capacity building and training” and “public awareness and communication”.

3. The workshop on Roadmap Tools held in Bangkok from 12 to 16 October 2009 provides project outlines and some drafts that can be refined according to the overall picture and gist of the tools set out in the present overview.

**RECOMMENDATIONS**

The Sub-Commission

1. ENDORSE the executive summary.
2. AGREE to the proposed process in developing the full toolkit.

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Appendix XV

Draft SEAFMD Vaccination Strategy

Purpose

- To seek comments and suggestions on the Advanced Draft of the SEAFMD Vaccination Strategy so that the paper can be further improved. It aims to serve as an overall guidance document for the SEAFMD Program and for use by Member countries in the development of their vaccination strategies including an assessment of costs and funding options.

Background

- The SEAFMD 2020 Document seeks to achieve freedom with vaccination by the year 2020. It is planned that the 2020 Document be reviewed in 2010 and, taking into account experiences learned since the establishment of the SEAFMD Program, improve future planning.
- Vaccination as a key component of the 2020 Strategy and therefore needs close examination to see if improvements and changes to future direction are merited.
- Discussion of the Draft should take into account other matters raised at the Sub Commission including the economic and qualitative studies of the Program, relevant activities of partner organisations, SEAFMD epidemiological surveillance reports, livestock movement research and donor and other opportunities to advance the Strategy.
- This document has been in development since mid 2009. The following steps have been employed to try and ensure each of; regional ownership, practical understanding and applicability, and international expert input:
  1. Prior to the last SEAFMD National Coordinators meeting in Bangkok (mid August 2009) a FMD vaccination questionnaire was answered by members relating to their countries current FMD vaccination use, vaccination policies and lessons learnt. Members were requested to develop their thinking around key aspects that might go into a SE Asian Vaccination Strategy in preparation for the meeting.
  2. Based on the questionnaire responses, a preliminary outline of the Strategy (mostly in dot points) was prepared for the meeting which was presented in association with a collation of relevant country responses to the questionnaire.
  3. This outline was workshopped at the meeting, with members providing further comments and ideas under each aspect. It was agreed that the first draft of the Strategy would be developed from the agreed outline and member comments/suggestions.
  4. As recommendations, it was agreed that the Strategy would be further refined following workshops and discussions at both the SEAFMD Lower (Nov09) and Upper (Jan10) Mekong WG meetings, with a final draft to be considered at the OIE Sub-Commission meeting in March 2010.
  5. Changes were made from the original version presented at LMWG and arising from the workshopping undertaken there. In terms of formatting, the Strategy has since been logically structured into 1. Purpose 2. General Considerations, 3. Policy and Strategic Issues, 4. Technical Issues, 5. Practical Aspects and Delivery.
  6. More inputs were incorporated from a workshopping session on vaccination at UMWG in Hanoi on 20 January 2010. Some expert inputs were also received. Far greater details were provided as to priority countries and provinces for support, and the strategy has been integrated more effectively with other work such as livestock movement studies.
  7. This advanced draft was sent to National Coordinators for final comment prior to SEAFMD Sub-Commission
  8. At this stage, the advanced draft was also sent more broadly to SEAFMD stakeholders for comment; including partner international, research and laboratory organizations, as well as vaccine company representatives.
  9. The draft has been further modified taking into account all comments received, for consideration at the SEAFMD Sub-Commission meeting. Thanks to all those who submitted inputs with a tight timeframe.
Issues

- Vaccination is a key tool in the management and control of FMD. Vaccination can be applied across range of circumstances – blanket, hot spots, emergency management and trade. The purpose and nature of vaccination can therefore vary considerably and needs to be determined by each country.

- Optimal vaccination strategies are not always possible for a variety of reasons – cost, quality, supply, inadequate handling and administration, poor management, follow-up and the like. Further vaccination is usually a long term effort of several years duration requiring ongoing monitoring and evaluation that can incur significant product and on costs.

- In recent years the nature of FMD risk has changed to an extent given economic factors such as marketing and trade as well as the introduction of new strains. This has implications for zoning arrangements, contingency planning, particularly in free countries or zones, and prevention measures in hot spots and or/ source areas of infection.

- New initiatives such as vaccine banks (the EC HPED Program), proposed FAO/ADB activity and AusAID funding go some way to supporting FMD control. However, a fresh look at vaccination needs and options is required to support Program direction and meet targets medium term. They need to involve resource support to be successful.

- More specific planning at national level is required to build proposals and assess capacities for further activity. This aligns neatly with a closer focus on coordinated field activity by SEAFMD, as relevant to its zoning approach.

Recommendations

SEAFMD Members:

1. NOTE and PROVIDE comment on the papers.
2. AGREE that, on the basis of comments and other expert inputs, the Strategy document be refined for consideration and finalisation by National Coordinators, Members, ASEAN, OIE and FAO.
Appendix XVI

Review of SEAFMD 2020 Roadmap

Purpose:
To seek endorsement of the OIE Sub-Commission for FMD in Southeast Asia to review the SEAFMD 2020 Roadmap

Background:
The SEAFMD 2020 Roadmap was developed to provide a long-term strategic framework to guide members in achieving FMD freedom with vaccination in South East Asia by year 2020. This Roadmap has been drawn up based on the significant progress of the South East Asian Foot and Mouth Disease (SEAFMD) campaign that was established in 1997. The development of the Roadmap started in July 2005 during the SEAFMD National Coordinators Meeting. Its has undergone a long process of consultations and was finally endorsed by the OIE Sub-Commission for FMD in South East Asia in March 2007 and by the OIE Regional Commission for Asia, Far East and Oceania in May 2007. It was also endorsed by the ASEAN Sectoral Working Group for Livestock (ASWGL) in April 2007.

The SEAFMD 2020 Roadmap has been used as a model for development of similar strategic documents for other transboundary diseases. The ASEAN HPAI Task Force has used this document as a guide in developing the ASEAN Regional Strategy for the Progressive Control and Eradication of HPAI in ASEAN (2008-2010). The SEAFMD 2020 document is also being used in developing a roadmap for the sub-regional control of Classical Swine Fever (CSF) in South East Asia.

Globally, SEAFMD has been recognised as a good model for sub-regional control of FMD in other parts of the world. During the Global Conference for FMD Control held in Paraguay this June 2009, the SEAFMD was cited in several presentations and in the final recommendations as a good model for sub-regional and regional control of FMD.

Issues:
As indicated in the SEAFMD 2020 document released in 2007, the roadmap is a living document, subject to review and revision, in the light of changes along the way. Many changes have transpired in the past three years since its implementation. Significant amount of scientific and epidemiological information on the status and behaviour of FMD in the region have been acquired the past years. More detailed information on the animal movement pathways and other main risk factors involved in the transboundary spread of FMD have also been acquired.

The recent changes in the political, economic and trade landscape have to be considered to enable the implementation of the SEAFMD 2020 roadmap attuned to these changes.

The existing strategy of progressive zoning has to be reviewed in the light of these changes, and other approaches such as strategic vaccinations in FMD hotspots, focus interventions in identified critical points along the animal movement pathways, maintenance of FMD free zones, etc. Resources for country implementation are critical hence leveraging for funds from the governments and international development agencies is essential. The role of the private sector, particularly the farmers and traders groups, private veterinary practitioners, and other industry players have to engaged more closely to support the programme.

Recommendation:
It is recommended that the OIE Sub-Commission:

1. ENDORSE to review the SEAFMD 2020 Roadmap.
Meeting of SEAFMD Delegates
17 March 2010, 10:30 am – 3:30 pm

AGENDA

Chairperson: Dr Gardner Murray
Rapporteur: Dr Ronello Abila and Dr Sharie Aviso

1. Introduction

2. Nominations of issues for discussions

3. Nomination of Vice-Presidents

4. SEAFMD 2010/11 Program
   a. Technical
      i. Meetings – review the zoning meeting vis-à-vis in-country meetings
   b. Institutional
      i. Review of SEAFMD 2020 Roadmap
      ii. Vaccination Strategy

5. SEAFMD Phase IV

6. PR China membership to SEAFMD Sub-Commission

7. Other matters

8. Recommendations
Appendix XVIII

Meeting of SEAFMD Observer Delegates

17 March 2010, 10:30 am – 3:30 pm

AGENDA

Chairperson: Dr Bernard Vallat

Rapporteurs: Dr Mara Gonzalez and Dr Itsuo Shimohira

1. Introduction

2. OIE policies and programmes and future directions

3. The SEAFMD 2010/2011 Programme
   - Issues and constraints
     i. Technical
     ii. Institutional
        - Review of SEAFMD 2020 Roadmap
        - Vaccination strategy

4. SEAFMD Phase IV
   - Resources

5. Membership of China to Sub-Commission

6. Other matters

7. Recommendations
Recommendations of the Observers Meeting

That the SEAFMD Sub-Commission Observer Delegates:

**GENERAL**

1. ACCEPTED and WELCOMED the People’s Republic of China as a full official member of SEAFMD, noting they will take part in the development of SEAFMD policies and programs and participate in all relevant activities.
2. PROPOSED a new name for the Campaign, the South East Asia – China Foot and Mouth Disease Campaign, or SEACFMD to be used after the OIE World Assembly of Delegates in May 2010.
3. REQUESTED that China nominates its SEACFMD National Coordinator as soon as possible and advises the Director General of the OIE and the SEACFMD RCU.
4. NOTED that all previous agreements made under SEAFMD (prior to China’s membership), including member countries, ASEAN, donors and other partner agencies will continue to be implemented.
5. AGREED that basic veterinary capacity is lacking in many countries of the region and that a stronger focus and investments on veterinary and para-veterinary education (initial and continuing education) is warranted from governments and donors. Curricula should incorporate appropriate levels of training relating to veterinary public health issues and transboundary animal diseases as recommended in the OIE Global Conference on Veterinary Education held in 2009.
6. AGREED that lessons learnt from international experiences in terms of FMD vaccination and eradication programmes in Europe, South America and Southern Africa be fully incorporated into planning and implementation for this region. Experts closely involved in related campaigns should be considered for invitation to act as resource persons relating to SEAFMD activity and vaccination planning in particular.
7. NOTED that the 2010-2011 SEAFMD Workplan (particularly the Vaccination Strategy) was highly ambitious and appropriate step-by-step approaches and prioritization of activity was required.
8. AGREED that socio-economic and cost-benefit studies of FMD control campaigns must continue and that the global public good concept should be highlighted as a key benefit.
9. NOTED that the Sub-Commission proposes to FAO and OIE that the Global Conference for FMD will be held in Asia in early 2012 (different options such as China, Thailand or other countries will be confirmed as soon as possible).

**POLICY/STRATEGIC**

10. SUPPORTED the review of SEAFMD 2020.
11. AGREED that a systems approach to strengthen veterinary services capacity is important to continue to enable governments to successfully deliver programs, such as FMD vaccination campaigns, and such work as was being progressed through the OIE PVS Pathway, including PSVS support and OIE legislation missions in this region.
12. AGREED that operational funding provided from governments and from beneficiaries is important to the Vaccination Strategy to demonstrate national commitment and improve sustainability of FMD vaccination campaigns.
13. AGREED that national focal points for FMD vaccination be nominated ASAP to the SEAFMD RCU by member countries to better coordinate the further development of the Vaccination Strategy and related activities.
14. NOTED the ongoing ASEAN cooperation on animal vaccines led by ASWGL. Key cooperation areas include ASEAN animal vaccine testing labs, ASEAN Registration for Animal Vaccines, ASEAN standards for animal vaccines.
15. NOTED ASEAN-OIE collaboration on animal vaccine through a series of regional workshops on best practices and quality control systems for animal vaccines.

16. RECOMMENDED that FMD vaccination strategies development initiatives be linked to the ASEAN cooperation on animal vaccines.

17. AGREED that commercial sector engagement and contribution is vital in any vaccination campaign, to leverage gains made from public funding of vaccination, as demonstrated in the Philippines.

18. NOTED that in August 2010 a Vaccination workshop will be conducted to further develop the Vaccination Strategy and related approaches, such as vaccination guidelines for use in hotspots and free zones.

19. NOTED that based on demographic, epidemiological and functional criteria, Central Myanmar has been identified as a particularly suitable target area for FMD control interventions, particularly a vaccination campaign if resources are sufficient.

20. NOTED that the zoning approach remains relevant, but that control activities relating to it may be appropriately undertaken in other areas that pose significant risks as a source of livestock movement into free zones.

21. NOTED AustAID’s continuing commitment to SEAFMD over the last 14 years and that it will explore ways to strengthen support based on provision of detailed and costed operational planning. It also encouraged the contributions from other donors via the OIE World Fund.

22. NOTED the EU HPED’s new contribution to build on SEAFMD activity with the provision of a virtual FMD vaccine bank based on suppliers’ commitment that will have specific conditions for the procurement of vaccines and penalties for compliance failure.

23. NOTED other donors, including Japan and New Zealand, could explore options for support.

24. NOTED that bilateral and multilateral cooperation between countries (including free countries) relating to funding, planning and implementation of FMD control needs to be strengthened, including vaccination support, exchange of information, movement control and establishment of zones.

25. NOTED that the revised 2020 roadmap include a description of expected major infrastructure and demographic developments (e.g. roads, dams, population growth and urbanization rates) in the region that will assist in anticipating relevant animal health and production issues.

TECHNICAL

26. NOTED the usefulness of independent official external quality control for measuring vaccine efficacy, and compliance with OIE standards, and options to use this prior to purchases of significant amounts of vaccine, as well as novel methods for measuring vaccine effectiveness and post vaccination sero-surveillance.

27. NOTED the potential usefulness of expert epidemiological inputs such as from experienced modelers in the development of vaccination strategies.

28. NOTED that vaccine producing laboratories present a risk as an FMD outbreak source and consideration could be given to external assessments of biosecurity risk based on standards.

29. NOTED that cooperation and engagement with vaccine manufacturers, selected by international call for tender, can better coordinate specific vaccination needs with timely and targeted supply.

30. NOTED that an assessment and possible options concerning country regulatory arrangements for emergency use of vaccination (pre-import agreements, customs clearance, cold storage etc) is needed to streamline vaccine bank delivery and aspects should be incorporated into the Vaccination Strategy, with opportunities for collaboration with other work such as PVS, PSVS and ASEAN activity.

31. NOTED that point-of-care FMD tests were closer to becoming validated and initial discussions regarding their use needed to begin.

32. NOTED a need for continuing research on the involvement of other species including small ruminants.
FIELD DELIVERY

33. NOTED that field aspects of vaccination delivery required special attention; including farmer communications and compliance, supply, incentives and training of vaccinators, adequate cold chain arrangements and related movement controls.

34. AGREED that wherever possible, accompanying livestock identification was important to employ with vaccination to facilitate better follow up; effectiveness of vaccination and the Vaccination Strategy, subsequent livestock movement and improved trust in vaccination certification.

35. AGREED that more socio-economic studies of the impact of FMD and its control at the smallholder and trader level may be required, including non-quantifiable benefits.

36. NOTED that care needs to be taken with economic assessments relating to the commercial versus the smallholder sector, given the disproportional scale of contributions relating to both benefit and cost for each, while national versus individual benefits must be established separately.
Appendix XX

National Coordinators Progress Report

Purpose:
To advise the OIE Sub-Commission for FMD in Southeast Asia on the report of the 12th National Coordinators’ Meeting.

Progress:
The 12th Meeting of the OIE SEAFMD National Coordinators was held in Siam City Hotel, Bangkok, Thailand from 17 to 19 August 2009. The meeting brought together the National Coordinators from the eight SEAFMD member countries and representatives of partner organizations, namely AusAID, ASEAN and FAO.

The meeting was formally opened by Dr Tritsadee Chaosuancharoen, Deputy Director General of the Department of Livestock Development in Thailand, who stressed the importance of synergizing disease control measures at the national and regional level. Mr Royce Escolar, Regional Program Manager of AusAID, congratulated SEAFMD for its numerous achievements and noted that despite its success, SEAFMD continues to strive for excellence. He specifically mentioned that SEAFMD has begun activities that aim to enhance the program’s Monitoring and Evaluation (M&E) systems and build RCU’s internal capacity to implement M&E activities. Dr Gardner Murray, President of the OIE Regional Sub-Commission for Foot and Mouth Disease in Southeast Asia, described the 12th National Coordinators Meeting as a busy one because of the range of issues to be covered and related matters for discussion. He noted that the SEAFMD Program has and is being used by others in different parts of the world as a model for the coordination of transboundary disease control measures.

The meeting reviewed the status of FMD of member countries. Serotype O South East Asia toptype remains the most common strain circulating. Serotype A outbreaks remains endemic in Thailand, and a relative increase was seen in Vietnam this year compared to the same period last year. It was also noted that outbreaks in Malaysia has significantly decreased this year compared to the same period last year.

Among the highlights of the meeting were progress reports of the SEAFMD Campaign as well as the individual country achievements of their national programs. The initial results of the OIE-SEAFMD/FAO-ADB animal movement studies was presented and a plenary discussion on FMD vaccination in Southeast Asia.

The meeting recommended conducting in-depth outbreak investigations to understand the behavior of circulating viruses in the field. The standing recommendation for more sample submission was reiterated recognising that this is essential to further conduct molecular epidemiological studies. It was also recommended to expand the coverage of surveillance areas where limited samples were collected before such abattoir, holding yards and commercial farms.

The meeting also recommended for revisions of the SEAFMD Monitoring and Evaluation (M&E) Framework taking into account the recommendations of the M&E expert who reviewed the SEAFMD M&E in April this year. The AusAID Gender and M&E program were presented, and the conduct of the stakeholder survey was also introduced.

The 12th Meeting of the National Coordinators:

1) NOTED the progress of the SEAFMD Campaign since the 15th Sub-Commission Meeting and SUPPORTED the program’s direction for 2009/2010.
2) NOTE the progress of individual countries FMD programs and SUPPORT in principle the future plans for 2009/2010 proposed by member countries for their respective FMD activities.
3) AGREED that the SEAFMD 2020 document be reviewed in 2010 and revised if necessary in the light of developments.
4) NOTED developments with the OIE Sub-Regional Representation in Bangkok, and that the SEAFMD RCU will retain its identity, funding and Regional Coordinator.
5) CONGRATULATED RRL Pakchong for getting recognition as an OIE Reference Laboratory for FMD.
6) NOTED that the OIE Reference Laboratory at Pakchong can carry out diagnostics to support molecular epidemiology, but requires more samples; and agree that the focus on molecular epidemiology be increased as this will provide a more up to date and comprehensive understanding of FMD.

7) AGREED that issues of sample submission, vaccine matching, phylogenetic analysis be further discussed at SEAFMD LabNet meeting in Sept/Oct 2009.

8) AGREED that the RCU develops disease surveillance, monitoring and reporting activities and that progress against the indicators be presented at National Coordinators’ meetings.

9) ENCOURAGE the broadening of surveillance and outbreak reporting to other areas where less data is available such as slaughterhouses, livestock holding yards, commercial farms, etc.

10) Recommends that at least 3 in-depth outbreak investigation reports, preferably from SEAFMD control or buffer zones, to be presented yearly by each country to National Coordinators’ meetings, and that consideration be given to publishing selected examples in communications documents or scientific publications.

11) NOTED key factors contributing to FMD outbreaks include inadequate surveillance; delayed and/or under-reporting; inadequate vaccination; lack of farmer knowledge, especially smallholders; illegal movements; inadequate budget and personnel; and poor disinfection and hygiene procedures.

12) NOTED the progress on animal movement studies in SEA Asia implemented by AusAID/DAFF A/Murdoch/SEAFMD SPSCB, ACIAR ULM and FAO-ADB/OIE SEAFMD, and AGREED to conduct similar studies in the future to continuously monitor changes in the animal movement pathways.

13) NOTED that the FAO/ADB Program and complementarities with the SEAFMD Program in the Upper and Lower Mekong Zones.

14) AGREED that the RCU develop a broad based FMD vaccination strategy taking into account the advice of member countries, and lessons learned from other vaccination programs for FMD in countries such as the Philippines as well as other diseases such as HS, ND and CSF, And that the draft strategy be submitted to the next Sub-Com meeting for endorsement.

15) AGREED that, given the need for high herd protection levels after FMD vaccination, strong consideration be given to vaccine efficacy evaluation.

16) CONGRATULATED the Philippines on the successful progress of its FMD program.

17) SUPPORT the concept of a SEAFMD recognition award system for individuals or groups involved in the program, and that SRR develop criteria for giving such awards.

18) NOTE AusAID policy approaches to gender and development issues, and AGREE that the SEAFMD Campaign progressively introduce practical and applied measures to support its work from a gender perspective.

19) NOTED AusAID’s policy perspective on Monitoring and Evaluation (M&E) for its funded programmes.

20) AGREED to the proposed SEAFMD M & E four components and NOTE that RCU will develop indicators and approaches to provide guidance in drafting country reports aligned to the four components.

21) AGREED to support the SEAFMD stakeholders’ survey that will conducted by Dr. Sharie Aviso, NOTING the importance of this exercise in documenting the outcomes from the SEAFMD Campaign since 1997 and that a draft report will be finalized in November 2009.

22) NOTED that the 16th Sub-Commission Meeting will be held in Yangon, Myanmar on 15-19 March 2010.

23) THANKED AusAID, ASEAN Secretariat and FAO for their active participation in the meeting.

24) THANKED the Department of Livestock Development for its support in organizing the meeting.

**Recommendation:**

It is recommended that the OIE Sub-Commission:

1. NOTE the recommendations of the 12th National Coordinators’ Meeting.
Appendix XXI

Progress Report of the Upper Mekong Working Group (UMWG)

Purpose:
To advise the OIE Sub-Commission for FMD in Southeast Asia on the work of the Upper Mekong Working Group (UMWG).

Background:
The Upper Mekong Working Group was formed as an outcome of the Second Workshop on Animal Movement Management in the Mekong Basin. Its membership is Lao PDR, Myanmar, Thailand, Vietnam and Yunnan Province of PR China. The role of the working group is to develop a detailed project proposal for the establishment of a FMD control zone in the Upper Mekong Basin and determine its feasibility. When completed this would be used as the basis for negotiation for commitment and support by member countries and other agencies. The latest meeting of the working group was held in Hanoi, Vietnam on 20-22 January 2010.

Progress:
The Ninth Meeting of the Working Group on Zoning for FMD and Animal Movement Management in the Upper Mekong Region was held in Hanoi, Vietnam on 20-22 January 2010. The main objective of the meeting was to report the progress in establishing FMD control zones in the Upper Mekong as well as to further the Upper Mekong Working group to become a Commission.

The Meeting discussed critical issues including the recommendations for the 8th UMWG Meeting that have not been implemented successfully. Since 2005, the Upper Mekong Zone has not been successful in achieving its target and has even recorded outbreaks in areas not previously affected like the outbreak in the Northern part of Lao and the emergence of type A in the Northern part of Vietnam. How to contain these outbreaks is the biggest challenge for the Upper Mekong (UM) Zone in addition to the apparent change in animal movement patterns since the establishment of the UM Zone. This scenario warrants the implementation of intervention measures in the critical points to effectively control FMD.

The member countries reported on the status of FMD, activities being undertaken to control the disease and the additional support that they need to strengthen their FMD control program. All countries identified animal movement as the main cause of the outbreaks for 2009.

Several organizations/projects presented their on-going activities relevant to the setting up of Upper Mekong FMD zone.

Among the major outcomes of the meeting was the drafting of the country action plans for 2010 which will focus on in-country meetings. These in-country meetings will involve national and provincial level staff discussing ways to progress zonal activities in their respective countries.

One of the main recommendations for the meeting is that the progressive zoning approach remains valid for the UM Zone but that the boundaries will need to be reviewed in the light of disease prevalence and animal movement patterns.

The 9th Meeting of the Upper Mekong Working Group recommends:

STRATEGIC

1. NOTE the clear and excellent presentations by countries on the current status of their work in the UM zones.
2. NOTE the presentations from ACIAR, Sydney University and CIRAD.
3. NOTE the in-country activities for 2010.
4. AGREE that the progressive zoning approach remains valid for the UM Zone but that the boundaries be reviewed in the light of disease prevalence and animal movement patterns.
5. AGREE to review the SEAFMD progressive zoning approach in line with the on-going review of the SEAFMD 2020 roadmap, for endorsement in the next Sub-Commission meeting.

6. AGREE to review existing field activities of the Upper Mekong Zone (UMZ), and request SEAFMD RCU to support in-country workshops involving key staff from provinces in the UMZ to discuss in more details how to progress zonal activities.

7. AGREE to continue to explore the signing of an MoU to provide increased member zonal commitment for the Program.

8. NOTE that a revised UMZ Strategic Plan, incorporating the suggestions from this meeting, will be submitted to the next Sub-Commission for endorsement.

9. AGREE to provide final comments on a draft SEAFMD Vaccination Strategy that will be presented for endorsement at the March Sub-Commission meeting.

10. NOTE the previous indications from PR China to join the OIE Sub-Commission for FMD Control in SE Asia and this will enhance its existing participation in the Upper Mekong zoning.

11. NOTE that a socio-economic study is being undertaken to assess the impact of the SEAFMD campaign in the sub-region, including the UMZ.

**OPERATIONAL and TECHNICAL**

12. AGREE to exert more effort to report immediately FMD outbreaks using the WAHIS Regional Core for ASEAN (ARAHIS) to enhance sharing of information and early warning.

13. AGREE to improve submission of good quality samples to the National FMD laboratory and OIE FMD Reference in Pakchong, Thailand.

14. NOTE the significant changes in the FMD status of the UMZ in 2009, with the appearance of serotype A in northern Vietnam.

15. AGREE that surveillance and reporting need to be enhanced, and EXPLORE possibility of conducting participatory approach in gathering data from provincial/district offices, farmers and other stakeholders to get a better information of FMD prevalence. NOTE that there is an ongoing research on capture-recapture and examine its applicability for evaluation of FMD surveillance in the Region.

16. EXPLORE the possibility of implementing vaccination of animals at the markets and holding yards before they are shipped for export, to ensure enough protective immunity in case challenged by FMD viruses along the movement pathway.

17. NOTE observations of the latest movement patterns, including reduction of movement from Myanmar to Thailand, but an increasing movement from Thailand to Lao PDR and Vietnam.

18. AGREE that SEAFMD RCU will continue to monitor animal movement patterns and coordinate with other partners/projects in examining measures to reduce risks of FMD along the pathway.

**NEXT STEPS**

19. AGREE that the recommendations of the 9th Meeting of the UMWG be taken to the 16th Sub-Commission Meeting in Vientiane, Lao PDR in March 2010 for endorsement.

20. NOTE that next meeting of the UMWG and other zoning WG will be subject to discussion at the next Sub-Commission Meeting in March this year.

21. NOTE the offer of Thailand to conduct a free training course on the use of NID system to member countries.

**ACKNOWLEDGEMENTS**

22. THANKS OIE Asia Pacific (Japan Trust Fund) and SEAFMD RCU (AusAID) for their generous support for this meeting.

23. CONGRATULATES the officials and staff of the Department of Animal Health, Vietnam for their hospitality and excellent organization of this meeting.

**Recommendation:**

It is recommended that the OIE Sub-Commission:

1. NOTE progress with the work of the Upper Mekong Working Group.
Appendix XXII

Progress Report of the Lower Mekong Working Group (LMWG)

Purpose:

To advise the OIE Sub-Commission for FMD in Southeast Asia on the work of the Lower Mekong Working Group (LMWG).

Background:

The Lower Mekong Working Group was formed as an outcome of the Second Workshop on Animal Movement Management in the Mekong Basin. Its membership is Cambodia, Vietnam, Lao PDR, and Thailand and is chaired by the host country. The role of the working group is to develop a detailed project proposal for the establishment of a FMD control zone in the Lower Mekong Basin and determine its feasibility. When completed this would be used as the basis for negotiation for commitment and support by member countries and other agencies. The latest meeting was held in Ho Chi Minh City, Vietnam on 23-25 November 2009.

Progress:

The 8th Meeting of the Lower Mekong Working Group (LMWG) for Foot and Mouth Disease (FMD) Zoning and Animal Movement Management was held on 23-25 November 2009 in Ho Chi Minh City, Vietnam. The meeting was attended by representatives of the four member countries of the LMWG initiative: Cambodia; Laos; Thailand and Vietnam; Dr Gardner Murray, President of the OIE Sub-Commission for FMD Control in Southeast Asia and Special Advisor for OIE; Dr Ronello Abila, Sub-Regional Representative of the OIE Sub-Regional Representation for Southeast Asia; and Dr Kenji Sakurai, Deputy Regional Representative OIE Regional Representation for Asia and the Pacific. Also represented at the meeting were partner organisations: FAO Regional Office of Asia and Pacific, CSIRO Australian Animal Health Laboratory (AAHL); ACIAR; and EU Smallholder Livestock Production Programme (SLPP).

The sporadic but continued outbreaks in the Lower Mekong Zone remain to be the most important challenge being faced. Cattle and swine movement poses risk in the spread of the disease thus the need to manage its movement. To manage these risks, further studies were suggested to be done like investigating the roles of different species in the epidemiology and transmission of FMD and understanding the market chains of different species and livestock products.

The need for detailed study and documentation on the outbreaks for publication purposes was reiterated. In line with this, the need to harmonize the definition of FMD outbreak in the different countries was recognized. Some countries do not use the standard definition and in Laos for instance, debates on this outbreak definition occurred since animals share pastureland.

It was also recognized that the current strategy needs to be reviewed. The critical issues are risk mitigation measures on animal movement on both directions; limited supply of vaccine plus the need to strategically use vaccine and analysis of the impact of the vaccination; and bilateral support for Laos and Cambodia. As shared by participants, there is still more work to be done at the ministerial level.

The validation of results of passive surveillance was also proposed since some provinces have local data that are not reflected in the national data. It may be useful to interview farmers and compare with the data to build information.

With regard to the Cambodia-Vietnam MoU on Animal Health Cooperation, more discussions will be done during the Third Bilateral Meeting on Animal Health Cooperation which will be held in Ho Chi Minh City, Vietnam in 2010. The date and venue will be confirmed by Vietnam side in due course. One of the components of the MoU is cooperation in the training and upgrading human resources in the field of animal health which would include training on animal quarantine.

Inputs of the participants in developing the vaccination strategy were gathered through a workshop facilitated by Dr Ronello Abila and Dr John Stratton.
The 8th Meeting of the Lower Mekong Working Group:

1. NOTE the progress report of member countries.
2. AGREE to continue the evaluation of zoning initiatives in the Lower Mekong taking into account the changing patterns of FMD and possible sources of infection, and recommend on future directions for the LMZ in line with SEAFMD 2020 roadmap.
3. AGREE to organize consultation meetings with provincial veterinary offices, other government agencies, traders and other key stakeholders in the LMZ, in order to develop action plan to implement the LMZ initiative.
4. AGREE to conduct thorough investigations of some FMD outbreaks and develop these into case studies to document fully the behaviour of prevailing virus strains circulating and the risk factors involved in the outbreaks.
5. AGREE to enhance timely submission of reports to SEAFMD through the OIE WAHIS Regional Core for ASEAN/ARAHIS for routine report submission, and to OIE WAHIS for emergency reports in case of new epidemiological findings.
6. NOTE the draft vaccination strategy presented and AGREE to finalize this strategy taking into considerations the outputs from the workshop during this meeting.
7. NOTE the FAO/ADB Phase 2 Project to support pilot vaccination in Cambodia and Lao PDR, and support for post vaccination monitoring studies in Vietnam.
8. NOTE the progress on the implementation of the MOU between Cambodia and Vietnam on Animal Health Cooperation, and the agreements reached during the past two bilateral meetings.
9. NOTE the success of the Outbreak Investigation and Management (OIM) training courses implemented in Cambodia and Lao PDR, and AGREE to conduct trainors’ training on OIM using the revised manual; and where feasible customize the training course to meet the needs and conditions of member countries.
10. REITERATE the importance of collecting good quality samples for antigen typing and ENCOURAGE the submission of samples to OIE FMD Reference Laboratory in Pakchong, Thailand.
11. NOTE the success of the animal movement studies of FAO/ADB-OIE/SEAFMD project, its contribution in better understanding the cross-border animal movement pathways and THANK ACIAR-ULM for their close collaboration in the implementation of this project.
12. NOTE the contributions of ACIAR-ULM project in better understanding of the animal movement pathways and its drivers, and its future activities to develop intervention measures to reduce the risks of FMD spread along these pathways.
13. THANK AAHL Geelong and EU-SLPP for their active participation and support to LMZ initiative.
14. THANK OIE Asia Pacific and OIE Southeast Asia for their continuous support in organizing the Lower Mekong Working Group meetings.
15. THANK the Department of Animal Health of Vietnam for their hospitality and excellent organization of the meeting.
16. AGREE to propose to Thailand to host the next Lower Mekong Working Group Meeting in November, 2010.

Recommendations:

It is recommended that the OIE Sub-Commission:

1. NOTE progress with the work of the Lower Mekong Working Group.
Appendix XXIII

Report of the 10th Meeting of the Malaysia–Thailand–Myanmar Tri-State Commission (MTM TSC)

Purpose:

To advise the OIE Sub-Commission for FMD in Southeast Asia on the report of the 10th Malaysia-Thailand-Myanmar Tri-State Commission (MTM TSC).

Progress:

The 10th meeting of the Malaysia-Thailand-Myanmar Tri-State Commission (MTM TSC) was held in Yangon from 9 to 11 June 2009. The meeting was attended by: Dr Aung Gyi, Director General of Livestock Breeding and Veterinary Department (LBVD), Myanmar; Dr Ronello Abila and Dr John Stratton, OIE Sub-Regional Representation in Bangkok; Dr Peter Black, Department of Agriculture, Fisheries and Forestry (DAFF), Australia; Dr Kenichi Sakamoto, National Institute of Animal Health (NIAH), Japan; Dr Chris Morrissy, AAHL; Dr Wilai Lintchongsabongkoch, RRL. Three participants from each member country attended the meeting and included at least one participant from the MTM region of each member country. Members of the MTM EpiNet, Myanmar MTM Taskforce and observers from LBVD, Myanmar were also in attendance.

The 10th meeting of the MTM Tri-State Commission (TSC) continued the theme of how to move the MTM forward, which was started at the 9th MTM TSC meeting in 2008. The main focus of the meeting was looking forward to what could be achieved in the MTM Zones and also looking beyond the MTM Zones to control FMD in areas of strategic importance for the MTM Zones and South-East Asia generally. A key component of the meeting was a feasibility study for establishing a zone and associated control programme in the Central Myanmar Plateau. This will continue to be refined by SEAFMD and LBVD prior to seeking high level political support and donor support. The FMD status in the MTM Zones shows that there has been a marked reduction in outbreaks in Malaysia, continuation of outbreaks in Thailand MTM Zones, while the Myanmar MTM Zones remain free of outbreaks.

A workshop was held in which two groups, one composed on international participants and the other of LBVD, Myanmar participants. The workshop was a continuation of an outcome of the MTM EpiNet meeting to develop goals for the MTM Campaign (2012 and 2015) and the activities needed to achieve those goals. The LBVD group was asked to consider the proposed Central Myanmar Zone as well as the MTM Zone. The major outcomes of the workshop were that all participants believed freedom by 2012 was not feasible in the MTM Zone and noted again the importance of controlling FMD beyond the MTM Zone boundaries.

The MTM EpiNet provided recommendations to the Tri-State Commission based on discussions from the MTM EpiNet meeting on 8 June 2009. These recommendations were endorsed by the MTM TSC.

The meeting was highly productive and is expected to result in some increased activity in both the short and long term, with the feasibility study already drafted for Zoning in the Central Myanmar Plateau; progress will focus on gaining support for this initiative in terms of political support, donor support and technical support. Continuation of engagement of the private sector is planned with further trader meetings to be held before the 11th meeting of the MTM TSC.

It was recommended that the MTM Tristate Commission:

1. NOTE the progress of member countries activities in implementation of the MTM campaign.
2. NOTE the update on the FMD status in the MTM zone, in particular the significant reduction of outbreaks in Malaysia during the 1st quarter in 2009 as compared to the same period in 2008.
3. NOTE the goals set for the MTM Campaign for the year 2010, 2012 and 2015, and AGREE to revise the MTM Campaign Strategy based on the output from the workshop, and finalize the strategy document for endorsement in the next MTM TSC meeting.
4. NOTE the progress of the feasibility study for the setting up of FMD control zone in Central Myanmar and AGREE that LBVD will provide additional information and assist in finalizing a project proposal by 2nd week August 2009.

SEAFMD 16th OIE Sub-Commission Meeting, Vientiane, Laos
5. REQUEST that the SEAFMD RCU assist in finding donors to support the proposed project for Central Myanmar.

6. AGREE to conduct a study to review vaccine and vaccination practices in member countries, and develop strategies to further improve vaccination as a tool to prevent and control outbreaks. This includes aspects of vaccine sources and costings, spatial deployment, integration with existing vaccination activity (e.g. HS in cattle) and post-vaccination serological surveillance.

7. REQUEST member countries to draft a short history on the occurrence of different FMD serotypes which are no longer endemic (e.g. serotypes A and Asia 1), providing information when it was first detected, when was it last seen, and the areas affected.

8. AGREE to strengthen coordination linkages at the local level in the MTM zone through conduct of consultation meetings with local officials, private sector and other stakeholders.

9. ENDORSE the report and recommendations of the MTM Epidemiology Network (EpiNet) Meeting on 8 June 2009.

10. RECOMMEND that member countries increase the number of samples sent to the Regional Reference Laboratory (RRL) for confirmatory testing and/or for sequencing work. Existing protocols should be followed for sample submission to RRL.

11. NOTE the important role of private sector involvement in facilitating safe trade of livestock in Malaysia and Thailand and RECOMMEND exploring similar activities in Myanmar.

12. ENCOURAGE bilateral meeting between Myanmar and Thailand on the issue of cross-border livestock trade and TSC REQUEST Thailand to host the first meeting.

13. NOTE the private sector meetings conducted under the SPSCB Project and RECOMMEND that further such meetings are conducted in MTM member countries before the next MTM TSC meeting.

14. NOTE that SEAFMD RCU will assist in looking for resources to ensure sustainability of the MTM EpiNet and other initiatives started by the SPSCB Project.

15. NOTE the successful conduct of the full pathway risk analysis studies from the source of animals to the MTM Zone.

16. RECOMMEND regular studies of livestock movement pathways in order to monitor changes in those pathways and identify potentially high risk areas.

17. RECOMMEND that further research be conducted focusing on the critical points identified through the SPS animal movement studies including surveillance, analysis of stakeholders and more detailed study of movements.

18. NOTE that outbreak investigation training was conducted in Myanmar and further training is planned for MTM member countries.

19. AGREE to revise the MTM surveillance manual and a formal request submitted to DAFF/Australia for Dr Peter Black to assist in this revision.

20. NOTE the on-going research study on FMD persistence in sheep and goats in Mandalay, buffalo in Ayeyarwaddy and Yangon in Myanmar and in Thailand involving all FMD susceptible species.

21. NOTE that official trade of goats and sheep from Myanmar to Malaysia has successfully been implemented, and ACKNOWLEDGE the role of the MTM Campaign in facilitating safe trade of livestock among MTM members.

22. RECOMMEND continued engagement of the private sector, particularly livestock traders through public awareness and communication.

23. NOTE the draft communication strategy for the MTM Campaign, and AGREE that members will provide comments and once finalised, AGREE to incorporate the communication strategy to the revised comprehensive MTM strategy.

24. THANK OIE SEAFMD RCU, AusAID/DAFF/SPSCB Project and Murdoch University in organising this meeting.

25. THANK the staff from the Livestock Breeding and Veterinary Department (LBVD) for their excellent hospitality and for a successful and well organized 10th MTM TSC Meeting.

26. THANK Australia (DAFF and AAHL) and NIAH-Japan for their contribution to success of the MTM meeting.

27. NOTE that the 11th MTM TSC meeting will be held in Malaysia in June 2010.
Recommendations:

It is recommended that the OIE Sub-Commission:

1. NOTE the recommendations of the 10th Meeting of the Malaysia-Thailand-Myanmar Tri-State Commission (MTM TSC).
Progress of the SEAFMD Laboratory Network (LabNet)

**Purpose:**
To advise the OIE Sub-Commission for FMD in Southeast Asia on the work of the Laboratory Network (LabNet).

**Progress:**

The 4th Sub-Regional Workshop of the SEAFMD Laboratory Network was held in the Regional Reference Laboratory (RRL) in Pakchong, Thailand from 1-2 October 2009. The workshop was attended by OIE SEAFMD Regional Coordination Unit (RCU), Food and Agriculture Organization (FAO), Heads of the FMD laboratories of SEAFMD member countries, experts from Australian Animal Health Laboratory (AAHL) Geelong and National Institute of Animal Health (NIAH) in Tokyo, Japan, Heads of FMD laboratories in Thailand, and staff of RRL in Pakchong.

Dr Ronello Abila, Regional Coordinator of the OIE SEAFMD Campaign stressed in his opening speech the need to implement the recommendations or new approaches from last year’s meeting, which included the improvement of communication network and agreement to have an inter-laboratory testing.

Dr Vimol Jirathanawat, Director of the National Institute of Animal Health officially opened the meeting. He stressed that the diagnosis and laboratory network plays an important role in the achievement of SEAFMD 2020 and one of its major activities is the improvement and development of FMD diagnostic capacity of the member countries to be in parallel with laboratory quality standard of testing. The official recognition of the RRL as an OIE Reference Laboratory for FMD, which is the first in Asia, is the fruit of its development of laboratory quality standard, laboratory capacity building and competency of RRL staff. As such, the RRL will provide the backbone, set standards for quality control, provide specialist diagnostic tests to back up the SEAFMD Campaign and work as the laboratory network hub in the Region.

The purpose of the workshop was to discuss the progress of FMD diagnostic laboratories status in each SEAFMD member countries, constraints encountered in the collection and testing of samples, constraints in sending of samples to the Regional and World Reference Laboratory, and the progress of the Proficiency Testing (PT) and Quality Assurance (QA) Systems for FMD Laboratories in collaboration with AAHL, Geelong.

Among the highlights of the workshop were presentations and discussions on the results of the vaccine matching done in RRL and the possibility of collecting other samples like saliva and probang samples in addition to the usual surveillance and collection of vesicles in animals with active infection. Saliva and other secretions can be collected in febrile animals suspected to be with FMD but has no clinical signs like vesicles. The probang samples can be used to determine carrier animals, similar to the study being conducted by Dr Blesilda Verin in water buffaloes.

The delegate from each SEAFMD member country presented a country report, identifying the constraints and problems encountered in their laboratories. The workshop also discussed the progress with the Proficiency Testing and the Quality Assurance (QA) systems for FMD Laboratories. Majority of the laboratories encounter budgetary constraints and problems in the quality of samples submitted from the field. The OIE SEAFMD RCU and FAO have committed to assist with the cost of sending samples to the RRL and to provide biosafety containers and probang cups.

Experts from NIAH, Japan and AAHL, Geelong presented the current and future research works in FMD which will open possibilities for collaboration with the LabNet to progress research works crucial for the control of the disease. They also shared expert advice on the proper handling of probang and saliva samples.

In the plenary session, the meeting discussed constraints and problems encountered in the laboratories, the training needs, budget and other resources, as well as research priorities and policy. It was agreed that support must be given to Myanmar in the possible studies on the carrier status of sheep and goats. This will be in line with the RCU’s plan to do comprehensive surveillance in sheep and goats and cattle and buffaloes.

The meeting also noted that to effectively control FMD, vaccine matching must be done to determine efficacy of current vaccines to the circulating FMD virus strains. Member countries should also emphasize on particular
issues relating to the importance of collecting more samples, weaknesses relating to proper sample collection, transportation and effective training of field staff, and the need to improve FMD diagnostic testing reliability including enhancing capacity and supply of equipment and reagents.

One of the important recommendations of the meeting was the drafting of Standard Operating Procedures (SOP) for FMD laboratory diagnosis, using the “OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases.” Regular calibration and/or verification of laboratory equipment will also be done in collaboration with local companies who can provide such services.

It was also agreed that support for training to properly conduct swab and probang collection techniques as additional tool would be requested.

The Meeting expressed sincere gratitude to the Department of Livestock Development, specifically to RRL, Pakchong for its support in organizing the workshop.

The 4th Sub-Regional Meeting of the Laboratory Network (LabNet) recommends:

1. CONGRATULATE RRL-Pakchong for getting recognition as an OIE FMD Reference Laboratory.
2. NOTE the achievements of the SEAFMD Laboratory Network (SEAFMD LabNet) since its establishment in 2005, and the valuable contributions of RRL and member countries in making this LabNet an excellent model for other TADs LabNet in the region.

Sample Collection / Submission

3. AGREE to further improve collection of good quality samples with accompanying detailed information.
4. AGREE to work closely with Shipping Companies/Freight Forwarders and Airlines to facilitate prompt submission of samples to RRL.
5. NOTE that tongue epithelium is the best sample to collect for FMD virus identification.
6. EXPLORE the possibility of using swabs in collecting samples from suspected viremic animals without clinical lesion, and for probang as additional tool to collect samples from animals with old lesions, for the virus isolation. In this regard, REQUEST support for training to properly conduct these techniques.
7. NOTE that OIE SEAFMD will continue to support provisions of biosafety containers, probang cups, and shipment costs to RRL; and that FAO offer similar assistance to member countries.

Quality Assurance and Biosafety/Biosecurity

8. AGREE to submit as soon as possible results of inter-laboratory tests within one month.
9. AGREE to start drafting Standard Operating Procedures (SOP) for FMD laboratory diagnosis, using the “OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases.”
10. AGREE to conduct regular calibration and/or verification of laboratory equipment and EXPLORE local companies who can provide such services. REQUEST international partner organizations to support member countries on this matter.
11. EXPLORE possibility to conduct Laboratory Biosafety Risk Assessments, in coordination with other similar donor-assisted projects.

Researches

12. NOTE the progress of the ongoing studies on FMD virus persistence in several species in Thailand, and on Asian buffaloes in Lao PDR and Myanmar.
13. NOTE the sero-surveillance study in sheep and goat in central Myanmar and AGREE that all samples collected shall also be sent to RRL for further tests. AGREE to follow up sero-positive animals with probang collection.
14. EXPLORE the use of Virus Neutralization Test as additional tool to monitor compatibility of vaccines used in the sub-region against circulating FMD viruses.
15. AGREE to collaborate with the FAO-ADB FMD pilot vaccination studies in Cambodia and Lao PDR, and for the LabNet to assist in the design of post-vaccination assessment.

**Acknowledgement**

16. THANK the member countries and international partners (AAHL-Geelong, NIAH-Japan) for their active participation in this workshop.

17. Thank AusAID for its support in funding the SEAFMD LabNet Workshops.

18. THANK the RRL-Pakchong, NIAH and DLD-Thailand for its excellent organization of the 4th SEAFMD LabNet Workshop.

19. REQUEST LBVD-Myanmar to host the 5th SEAFMD LabNet Meeting in Yangon, in March 2010.

**Recommendation:**

It is recommended that the OIE Sub-Commission:

1. NOTE progress with the work of the Laboratory Network (LabNet).
Appendix XXV

Progress Report of the Epidemiology Network (EpiNet)

Purpose:
To advise the OIE Sub-Commission for FMD in Southeast Asia on the work of the Epidemiology Network (EpiNet).

Background:
The Epidemiology Network (EpiNet) held its first meeting in 1999 and the first major accomplishments were the development of standardised reporting system; FMD outbreak and case definition; and suggested minimum requirements for regional reporting. The EpiNet was established to form a network of epidemiological expertise to support the SEAFMD Campaign. It is envisaged to advise the Sub-Commission on improvements in surveillance and other activities. The network has a critical task of reporting to the SEAFMD RCU, analyzing data in the Sub-Region, and others.

Progress:
The meeting of the SEAFMD Epidemiology Network was held in Tagaytay City, Philippines on 23-24 February 2010. Tagaytay City is located in the Province of Cavite, which is approximately 56 km south of Manila. The meeting was attended by staff of the OIE SRR-SEA; delegates from the 8 member countries of the SEAFMD Campaign; Dr Davinio Catbagan, Officer-In-Charge of the Bureau of Animal Industry (BAI) of the Philippines; and observers from the BAI representing the Animal Health Division (AHD) and Philippine Animal Health Center (PAHC).

The purpose of the meeting is to review implementation of the past recommendations and also examine why some recommendations were not implemented. The SEAFMD Roadmap is to be reviewed and the role of the Epidemiology Network is critical to achieving FMD freedom of the Sub-Region by 2020. The case definition for FMD for example has been developed years ago but some countries still do not use the suggested case and outbreak definition thus creating problems in analysing data. The EpiNet meeting also aimed to further discuss on the constraints encountered in disease reporting and come up with recommendations to overcome these constraints. Furthermore, the meeting intended to draft epidemiological studies to underpin the gaps in achieving SEAFMD 2020.

In his opening remarks, Dr Davinio Catbagan, Officer-In-Charge of the Bureau of Animal Industry, confirmed that the SEAFMD has played a major role in terms of eradicating FMD in the Sub-Region through technical and financial assistance. Member countries has benefited directly and in-directly from the support of the SEAFMD Campaign. The Philippines, where agriculture contributes 18% to the GDP, has directly benefited from the Campaign. He stressed the need for epidemiological investigations since FMD has many strains.

It was reiterated in the meeting that member countries should report on a monthly basis and as much as possible report outbreaks promptly. In 2009, no emergency reports were submitted, meaning no new strains have been reported in the Sub-Region and although some countries are endemic, the epidemiology of outbreaks has not changed. The old data still need to be examined and there is a need to review country data on ARAHIS. The SEAFMD RCU offered assistance to member countries planning to conduct detailed analysis of FMD outbreaks. So far, only Laos was able to publish an investigation of FMD outbreak in the country. From year 2004, there was progress on the reduction of outbreaks and implementation of zones. A significant accomplishment is the freedom of the Philippines from FMD, which had its last outbreak on December 2005.

One of the major challenges faced by the Sub-Region is uncontrolled animal movement which has been identified as the main source of the outbreaks. One of the identified strategies to be employed is to have per country projects that will implement targeted vaccinations. It was suggested that analytical epidemiology training be conducted in tandem with trainings for mapping, which is just descriptive epidemiology. Experts may also be contracted to assist countries with the analysis of their data.

The meeting also discussed the different studies/researches on FMD being conducted in the member countries. One proposed study is the validation of the available passive information system and then comparing it with the actual data through the capture re-capture approach, which will be mainly focused in Cambodia. The result of the study will be used to assist countries on how to improve the reporting system and how to bridge the gap between the actual report and the result of the study. The need for action-driven reports was reiterated, meaning that
reporting is not just for the purpose of reporting but also to serve as basis for actions like ring vaccination and other strategies of the country. Other member countries have ongoing studies like the comparison of the commercial vaccine from the field strain in Vietnam, study on the efficacy of the FMD vaccine from India, and others.

Through the meeting, feedbacks on the outbreak investigation manual and the RANEMMA interactive CD were gathered. The participants were asked to submit pictures to be included in the manual and the CD.

The participants shared that the EpiNet meeting is a good venue to share FMD status in the different member countries. The RANEMMA CD is also a good tool to be used together with the outbreak investigation manual but translation of the manual into local language is necessary. The national coordinator and focal points for the LabNet and EpiNet must have very close coordination to strengthen the FMD control program in the country. The EpiNet focal points will be the lead in the implementation of outbreak investigation trainings and other programs in their countries. The focal points should also be sustained to enable evolution into a productive network. It was also suggested that LabNet and EpiNet focal points should have a joint meeting to enable discussion between the two networks.

The Meeting of the Epidemiology Network (EpiNet) recommends:

1. NOTE members FMD status reports, the temporal and spatial distribution the past 5-6 years, and risk factors involved. For future presentations, consider to provide more detailed information on changes of FMD status over a period of years.
2. AGREE to validate old FMD data in the ARAHIS/WAHIS Regional Core.
3. RECOMMEND to encourage members to exert effort to improve the field reporting.
4. NOTE that staff of Sub-Regional Representation for South East Asia (SRR-SEA) offer to help members conduct in-depth analysis of past FMD data for possible submission to scientific journals.
5. ENCOURAGE FMD countries/zones to document their experience in eradicating FMD to be shared with other countries.
6. REITERATE the application of the SEAFMD definition of FMD case and outbreak in reporting FMD status.
7. AGREE to conduct more detailed outbreak investigations and write a paper on some of these investigations that can be developed into case studies for possible publications in scientific journals.
8. NOTE that SEAFMD is searching for candidates for SEAFMD warrior award for field staff who have done good outbreak investigations and immediate response to control such outbreaks.
9. NOTE the development of the outbreak investigation manual and the e-learning interactive CD (RANEMMA) and RECOMMEND to use this tool for outbreak investigation training. ENCOURAGE members to translate the manual and CD to the local language and NOTE that SEAFMD will assist the members in finding funds.
10. NOTE the importance of conducting Trainer’s Training on Outbreak Investigation.
11. NOTE the priority researches needed to support SEAFMD 2020 and the ongoing researches being conducted by members. ENCOURAGE members to conduct relevant epidemiological studies identified in the research priorities.
12. ENCOURAGE members to ensure that nominated focal point for SEAFDMD EpiNet be sustained.
13. RECOMMEND to conduct a follow up meeting of the SEAFMD EpiNet next year and explore feasibility of having a joint meeting with SEAFMD LabNet, the date and venue to be arranged by the SRR-SEA in consultation with members.
14. THANK the staff of the Bureau of Animal Industry - FMD Task Force for their warm hospitality and excellent organization of this meeting.

Recommendation:

It is recommended that the OIE Sub-Commission:

1. NOTE the progress with the work of the Epidemiology Network (EpiNet).