



Regional priorities for SAARC Region

The 3rd Regional Roadmap Meeting on PCP-FMD for SAARC Member States, 14-16 December 2016, Colombo, Sri Lanka

Considering:

- The adoption of the FAO-OIE Global Strategy for the control of FMD (Bangkok, June 2012) with its 3 inter-related Components respectively on the control of FMD, the reinforcement of Veterinary Services and the combined control of FMD with other animal diseases;
- The importance of controlling FMD at regional level and the results of previous FMD regional Roadmap meetings in SAARC region as well as other regions.
- The importance of having a Regional Advisory Group (RAG) for SAARC region to analyse and present the results of the assessments to the participating countries and to promote the regional implementation of the FMD Global Strategy;
- That most countries of the region are in Stage 1 of the PCP-FMD and that, for moving into Stage 2 requires to present a risk-based strategic plan;
- The need to improve vaccine selection to the circulated strains and vaccine quality;
- The fact that countries must be assessed by one Regional Advisory Group (RAG) only;
- The Indian subcontinent has been the source of the recent long-distance movements and emergence of A/ASIA/G-VII and O/ME-SA/Ind2001d virus lineages into the Middle East, Northern Africa, West Eurasia and South-east Asia;

The seven Member Countries attended: Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka agreed:

- To elect the CVO/Delegates (or their representatives) of Bangladesh, Nepal and Sri Lanka as voting Members of the SAARC Regional Advisory Group for a 3-year period
- To elect Afghanistan and India representing the Regional Epidemiology and Laboratory Networks, respectively as voting Members of the SAARC Advisory Group for a 3-year period

The countries identified the following priorities for a better implementation of the Global FMD Control Strategy at regional level:



General

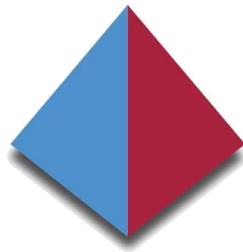
1. To continue the Roadmap process for the SAARC Member Countries to work towards the vision of absence of clinical FMD in the region by 2025, recognizing the key features and principles of the progressive control of FMD (PCP-FMD) and the need for competent Veterinary Services;
2. Countries to consider nominating their national PCP-FMD Point of Contact;



Specific

3. To establish or reinforce surveillance to gain a deep understanding of FMD occurrence at the national and regional levels;
4. Member countries to share their FMD national control plan with the SAARC countries;
5. For countries to consider requesting an OIE PVS initial evaluation or OIE PVS follow-up mission, if the initial PVS evaluation was carried out before 2012, to have an updated understanding of their Veterinary Services capacity to prepare subsequent capacity building activities according to the identified gaps (component 2 of the Global strategy for the control of FMD);
6. That member countries to research and identify synergies in combining FMD control with other livestock diseases of priority in line with Component 3 of the Global Control Strategy. These synergies should be clearly described in the FMD national control plans.
7. FAO, OIE, EuFMD to support building capacity and embrace technical skills to the national Point of Contact and other relevant stakeholders in the form of workshops, online courses and webinar series;
8. Given that animal movement is a very complex and controversial issue, there is merit to conduct workshops and brainstorming sessions engaging multi-stakeholders to harmonise control measures to reduce FMD spread through cross-border animal movement.
9. Conduct cross-border movement mapping and value-chain studies;
10. The following items be considered for inclusion to the agenda of the February 2017 Epi Focal Point Meeting:
 - Identify topic for capacity building in epidemiology and needs for training
 - Commit to a monthly communication event between epi focal points via an agreed platform (skype, webinar, HubNet). This should include updates on each country's recent FMD events as well as the sharing of practical experience(s).
 - The online training programme of EuFMD on the risk-based approach to FMD control, the role of monitoring and evaluation of activities, and addressing the necessary paradigm shift to establish a critical way of epidemiological thinking;
11. Countries are encouraged to be proactive in near realtime sharing of information on FMD outbreaks and particularly on the incursion of new virus lineage taking advantage of the exiting database such as WAHIS (OIE World Animal Health Information System), EMPRESi, SAARC database (SADIS) and/orHubNet;
12. RSU to continue compiling a list of post-graduate trainings on epidemiology available in the region and to post in the quarterly bulletin and on SAARC website (url?);

13. PD-FMD to supply SAARC countries with kits or reagents for antigen detection and serotyping, for NSP and SP serology and for RT-PCR, free of charge, or through cost sharing mechanism to ensure sustainability and quality of service. Laboratory results including phylogenies and matching findings should be copied to FAO and OIE in accordance with reference centre mandates supporting global surveillance;
14. PD-FMD to organise an annual proficiency test scheme for laboratories in the region and training in support of quality accreditation at the trainees' expense. PD-FMD will coordinate with laboratory points of contacts to build upon the existing regional laboratory network and establish regular means of interaction to discuss FMD laboratory related matters; and
15. RSU in coordination with the SAARC Secretariat to work out the modalities for cooperative vaccine procurement such as the SAARC Vaccine Bank, particularly financing, to ensure supply of good quality vaccine while ensuring cost effectiveness. In the meanwhile, countries are engaged to utilize the existing tendering process where the vaccine specifications along with documentation on vaccine potency, safety and efficacy are requested from the manufacturers before purchasing the vaccine. FAO can assist in this process if requested;
16. Countries should establish their own local systems for pilot vaccine batch testing to check the quality of vaccines and to calibrate their tests for wider post vaccination immunity studies. They should also establish field protocols to investigate vaccine breakdowns and monitor the impact of vaccination.



GF-TADs

GLOBAL FRAMEWORK FOR THE
PROGRESSIVE CONTROL OF
TRANSBOUNDARY ANIMAL DISEASES



Context of the regional roadmap meeting

Livestock plays a major role in world agriculture and represents approximately 43% of the agriculture contribution to national gross domestic product (GDP) as a global average. In South Asian countries, livestock accounts for 30% of the regional agricultural GDP and more than 60% of livestock are owned by the small holder farmers. The majority of low-income households in the region depend on livestock, which is an important source of protein, micro-nutrients, income and often the only insurance against crop failure. It is expected that by 2020, the demand for livestock products within the region will rapidly grow requiring the region to provide an estimated additional 4 million metric tons of meat and 65 million metric tons of milk. This presents significant challenges because of the impending and existing threats from transboundary animal diseases (TADs), prevalent in the region.

Among the important TADs identified in the region, foot and mouth disease (FMD) is considered a priority with variously estimated direct economic losses over USD 5.0 billion per year. The disease is endemic in at least seven of the eight countries of South Asia. In 2014 alone, six of the seven endemic countries of South Asia had collectively reported more than 1200 outbreaks of FMD, with serotype “O” most frequently isolated. The frequent unregulated animal movements across the region are considered one of the main risk factors for FMD virus transmission, requiring strong regional cooperation and coordination should the disease to be controlled.

In order to reduce the FMD burden, the Food and Agriculture Organization of the United Nations (FAO) and the World Organisation for Animal Health (OIE) developed a 15-year global control strategy in 2012 under the Global Framework for the Progressive Control of TADs (GF-TADs). Since the global FMD control strategy came to light, several initiatives were made to establish an enabling environment to make FMD control a feasible option particularly for the most affected countries by this disease.

The Progressive Control Pathway for FMD (PCP-FMD) was introduced as the guiding tool for the national control approach in which control measures are applied in a step-wise and monitored manner. Around 60 countries in the world are currently engaged at various levels in the implementation of PCP-FMD in the quest to control or eliminate FMD virus circulation by 2027. For an effective implementation of the global FMD strategy and to resolve some of the anticipated challenges, regional roadmap platforms have been successfully used to assess the progress of FMD control in accordance to the PCP-FMD guidelines. The FMD roadmap meetings are aimed at sharing information on FMD virus circulation in the region, assessing the progress of each country along the Regional Roadmap and assisting them in preparing and implemented their national control programmes.

The Regional Support Unit (RSU) of the Food and Agricultural Organization (FAO) of the United Nation in partnership with the South Asian Association for Regional Cooperation (SAARC) is implementing a project on Regional Capacity Development for Regional Cooperation in Food Security through Control of Transboundary Animal Diseases in South Asia being funded by the ADB. Considering the keen interest shown by all the countries of the SAARC region to pursue the FMD Progressive Control Pathway, the FAO

Regional Support Unit for SAAR (RSU-SAARC) had already organized the 1st and the 2nd Regional Roadmap meeting for South Asian countries in 2011 and 2013 in Kathmandu (Nepal) and Agra (India) respectively.

In line with the global strategy for the control of FMD, the 3rd Regional Roadmap Meeting on PCP-FMD for SAARC Member States was organized under the GF-TADs umbrella, by FAO and OIE, in partnership with the SAARC Secretariat on 14-16 December 2016 in Colombo, Sri Lanka.

The broad objectives of the regional PCP-FMD meeting were:

1. To provide training on the PCP tool and on the implementation of the FMD Global strategy at national level;
2. To present the current FMD situation in the region including distribution and prevalence of virus types/strains/genepool vis-à-vis vaccine strains in use and to review the regional vaccine production and procurement capacity;
3. To assess the SAARC Member States status of progress along the FMD Regional Roadmap previously defined;
4. Constitution of a Regional Advisory Group under the SAARC CVO's Forum to monitor and follow up the regional PCP-FMD roadmap.

The expected outcomes of the meeting were:

1. Good understanding of the current regional FMD situation and the progress made in FMD control based on PCP assessment;
2. FMD control gaps are identified and lesson learnt are shared among participant countries;
3. Supportive actions in the short and medium terms are identified;
4. Advices on the use of appropriated vaccines;
5. The Regional FMD-PCP roadmap is updated;
6. A Regional Advisory Group constituted with appropriate ToR for monitoring FMD PCP Roadmap in South Asia is established.

Organization

The meeting was held under the GF-TADs umbrella, in collaboration with SAARC Secretariat and technical support from European Commission for control of FMD (EuFMD). The meeting was hosted by the Ministry of Agriculture of Sri Lanka, to which the organizers are thankful.

Day 1 - December 14, 2016

Opening

HJH Javed, Director of the South Asia Association for Regional Cooperation (SAARC), Dr Caitlin Holley on behalf of Dr Hirofumi Kugita, OIE Regional Representative for Asia-Pacific, Ms Nina Brandstrup (FAO representative in Sri Lanka) and Honourable Amir Ali, Deputy Minister of Rural Economic Affairs of Sri Lanka offered the opening remarks.

The authorities highlighted the importance of the livestock sector for the economy of the region but also as a source of protein especially for those owners who has very limited access to land. A regional coordination, transparency and regional and international support is the only solution to reduce the burden of FMD. Thus, progressively controlling FMD in a coordinate manner will benefit the most vulnerable population and will contribute to the economic growth of the SAARC member countries.

Session 1: PCP-FMD principles and implementation

The FAO/OIE Progressive Control Pathway for Foot-and-Mouth Disease (PCP-FMD) was introduced by Dr Chris Bartels (EuFMD) as an important component of the Global Strategy for FMD Control. The objective was to improve awareness of the participants, and increase appropriate application of the PCP-FMD tool. The main features of the PCP-FMD, and the key activities occurring at each of its stages were overviewed. The main topics covered by the training included activities related to progress along the PCP-FMD pathway, the main characteristics for self-assessment of the PCP stage by the country, and the procedure for acceptance into the stage at a regional roadmap meeting.

Component 2 of the Global Strategy namely, Strengthening Veterinary Services was introduced highlighting the link with the OIE-PVS tool. The critical competences to be considered in each of the PCP stages were presented and discussed. The improvement of the prevention and control of other major disease in livestock was also mentioned as the Component 3 of the Global Strategy

Session 2: Global FMD situation and regional roadmap

2.1 Global FMD Update David Paton: On behalf of WRLFMD

Dr David Paton gave an overview of global and regional FMD virus situation. He highlighted on the activities of the OIE and FAO Reference Centres (+ affiliates), Global surveillance and changing patterns in risk pathways and improved harmonised laboratory capacity. The global status of FMD virus circulation comprising seven endemic pools across the globe were described and these genepools seemed to be very well segregated until recent times in their respective region/sub-region. He also explained that the OIE-FMD global network coordinated by WRL and SAARC RDL is part of the global laboratory network. More information on these networks can be found on the website of the WRL¹. As part of the normative services, WRLFMD supplied proficiency testing reagent panels to 63 participants in 2015 and Nepal is participating from this region. A total of 4526 samples were received in FMD-WRL between 2015 and 2016 among which no virus could be detected in 38% of specimens, which clearly indicates scope for improvement in specimen collection, preparation and despatch to reference laboratories from the field.

¹ <https://www.pirbright.ac.uk/>

Molecular epidemiological analysis of the FMD virus isolates indicates that **Serotype O** is predominant in the region (mainly - ME-SA/Ind-2001d) besides ME-SA/PanAsia-2 (2015 in Nepal, 2011 in Sri Lanka), **Serotype A:** ASIA/IND (genotype VII also known as genotype 18) and **Serotype Asia-1:** Lineage C subdivided into Eastern and Western clusters, however in Pakistan and Afghanistan Asia1/Sindh08 is detected.

Mapping of the occurrence of these serotypes/topotypes clearly demonstrated that several genepool 2 virus from the Indian subcontinent, e.g. A/ASIA/G-VII and O/ME-SA/India-2001D have jumped to other regions of the world such as the Middle-East, Northern Africa and SE Asia. These gene-pool jumps are indicating substantial trans-pool movement although transmission links are not clearly established. It does however pose serious threat to Europe and Africa.

The current gaps highlighted were: How much FMD is circulating in a region?, What is the true (unbiased) prevalence of the different viral lineages?, and How many samples need to be collected to have a more accurate (unbiased) idea about prevalence of different lineages?, How might we design the optimal surveillance of field cases within each of the pools?, What are the routes of international spread?, What are the improvements needed to arrange information sharing?, Are the efforts to control FMD having a positive impact upon burden of disease? – (in the different regional roadmaps) and and How should this be measured?

2.2 Update on the Implementation of Global FMD Control Strategy

Samia Metwally presented an “Update on the Implementation of Global FMD Control Strategy on behalf of GF-TADs FMD Working Group”. The strategy involves three components: 1) FMD control, 2) improvement of veterinary services and 3) simultaneous control of other diseases. The regional roadmap meetings are a platform that aim at sharing information on FMD virus circulation, vaccine strain selection, review of national control plans and PCP stage acceptance based on information supplied through questionnaire, interview and assessment by duly constituted Regional Advisory Group.

Under the FMD-PCP, FMD vaccination and post vaccination monitoring guidelines have been developed. In addition to the need for epidemiologic and diagnostic competencies, it was emphasized that an important factor for effective control programme is political commitment to integrate FMD control and to control within and cross-border animal movements.

2.3 Introduction to the RAG role and responsibilities

Laure Weber-Vintzel explained the objective, the role and responsibilities of the Regional Advisory Group (RAG) and the procedure for election before processing with the election itself. The Terms of Reference, including the composition and modus operandi of the RAG, were presented with emphasis on the role of the RAG as a link between the region and the international organisations, during and in-between roadmap meetings.

The RAG is composed of five voting-members (3 elected CVOs from the region and the two leaders of the epidemiology and laboratory network) supported by non-voting members (FAO and OIE staff from the WG, regional/sub-regional representations, and PCP and PVS experts and regional organisations as appropriate).

During this meeting the following members of the RAG were elected:

Elected and voting members

- Dr HBM Golam Mahmud, Delegate of Bangladesh (Chairperson)
- Dr T.A.C. Tiskumara, representative of the Delegate of Sri Lanka;
- Dr Mukul Upadhyaya, representative of Nepal;
- Dr Said Abdul Hussain Qanee, Afghanistan (Epidemiology network);
- Dr Rajeev Ranjan, India (Laboratory network)

Non-voting members

- GF-TADs FMD Working Group: Drs Laure Weber-Vintzel (OIE, co-chair), Samia Metwally (FAO, co-chair), Gregorio Torres (OIE) and Eran Raizman (FAO)
- PCP experts: Dr David Paton (WRL); Dr Chris Bartels (EuFMD), Dr Giancarlo Ferrari
- Dr Santanu Bandyopadhyay (FAO), Dr Caitlin Holley (OIE), Dr Ian Dacre (OIE)

Session 3: Setting the scene

3.1 Progress of the PCP-FMD in South Asia

FAO RSU Coordinator Santanu Bandyopadhyay gave an account of the progress made on FMD-PCP among the South Asian Countries. Key features and commitments made in the previous two FMD-PCP regional workshops held in 2011 and 2013 respectively for the region, were presented. According to self-assessment at these meetings (as the mechanism of a RAG did not yet exist), all seven countries were in stage 1 except India which self-assessed to be in stage 3. During the previous workshop, it was pledged by countries that by 2016 all would achieve at least stage 2 except India which had a plan to be in PCP stage 4. However, as is apparent now that by 2016, Stage assessment had not changed much except that Pakistan (which is now clubbed with West-Eurasian region) has achieved stage 2 status and in May 2016, India attained an OIE-endorsement of its FMD National Control Plan.

A detailed account was given of the recommendations from the previous two FMD-PCP workshops, i.e., action points for FAO/OIE, RSU-SAARC and individual Member States of SAARC. A very short summary of livestock value chain across the international borders between India, Bangladesh and Nepal was also provided.

3.2 Success story FMD control and containment in Pakistan

Dr. Qurban, the CVO of Pakistan on behalf of Dr. Afzal (FAO Pakistan) presented the case of Pakistan in regard to FMD control. The presentation made mention of several aspects where significant progress has been made, including: a) improvement of laboratory diagnosis where the national and provincial laboratories are fully functional including nine laboratories capable of serotyping FMDV with the National laboratory having the capacity of PCR and sequencing b) improvement of FMD surveillance where FMD is a notifiable disease and emphasis is given primarily to passive surveillance.

The presentation described the elements of the surveillance model, i.e. Field veterinarians, Epidemiology Unit, Provincial TADs officer and the Diagnostic Laboratory. Within this framework several essential elements were described including: Awareness of farmers and other stakeholders, capacity building of veterinary field staff and provision of sample collection and dispatch kit to the field staff. Also, it was emphasized that lab results are reported back to the field.

In a summary of outbreaks from 2012 to 2016 it was shown that Serotype O/PanAsia2/ANT10, Serotype A/Iran05/FAR09 and FAR11, and Serotype Asia1/Sindh-08 are the most dominant. If considering 2013 and 2014 there is a significant reduction in number of outbreaks in 2015 and probably in 2016 (2874, 2813 versus 1055 and 1125) respectively, assuming that surveillance has indeed improved. Important components of the project included large-scale awareness campaigns for livestock owners and technical training on cold-chain, vaccination application and reporting for technical staff. In terms of vaccination, in pre-project time, vaccination coverage was only 5% of the whole 80 million cattle and buffalo population. Nevertheless, in addition to the need for high vaccine quantities, there is a problem with vaccine quality, as outbreaks have even reported even after vaccination and, as a result, farmers doubt the efficacy of vaccination and do not cooperate adequately. Vaccines are locally produced and are imported where there is uncertainty if vaccines indeed contain the appropriate strain. Since the project has started most outbreaks provided valuable samples where the virus was genotyped and vaccine matching was conducted. A huge effort is given to vaccinate the dairy colonies as these are considered major risk hotspots. More than 133,000 animals were vaccinated but even more important an additional 118.000 livestock belonging to 19.000 small holders across the country were included in the vaccination campaigns. Post vaccination monitoring was done in about 3000 animals mainly from the dairy colonies and showed satisfactory levels of protective antibodies.

Session 4: Country reports

In order to have an updated state of play of the countries' situation regarding FMD, the representatives of each country presented a short report describing the FMD situation in their country, current control activities, identification of gaps and needs and plans for future control of FMD.

Summaries of the country information are presented in Annex 3, also including the outcomes of the self-assessment questionnaires.

Day 2 - 15 December 2016

Session 5: Cross border coordination for movement of livestock and risk for FMD transmission

5.1 Risk of Intra-Regional Movement: an OIE SECFMD Perspective' by Ian Dacre, OIE SEA Office

An animal movement study in 2015 identified major movement pathways and supply chains of large ruminants in the Greater Mekong Sub-Region. The study demonstrated the dynamic nature of livestock movement routes both into and within the region and the importance of developing regional disease control initiatives. Solutions suggested by the study included development of protocols to support movement based on health status, regionally accepted certification of vaccination, moving animal product rather than live animals and the creation of control zones. The study identified the magnitude of animal movements (estimated at 1 million cattle into China alone per year), the threat of unofficial movements and options for their control and movements into the SEACFMD countries from outside the region. Other points included: 1) the need to study drivers of "unofficial" movements, particularly among traders

towards understanding how to make official movements more attractive to this critical group; 2) the need to improve surveillance, including the use of molecular epidemiology as a tool and to couple this with movement data; and 3) ways to enhance ongoing inter-agency cooperation on movement management.

A “Joint Statement on Harmonizing Procedures for Livestock Movement among Cambodia, China, Laos, Malaysia, Myanmar, Thailand and Vietnam” was signed by CVOs in May 2016. Countries have agreed to encourage the establishment of control zones (export/import) within the region (based on practical animal health guidelines) for facilitating international and domestic livestock trade and minimize risks of FMD transmission. They also supported the development of regional and harmonized protocols on animal trade, including animal identification and a regional accreditation system of international traders.

GROUP BREAKOUT PRIORITY RECOMMENDATIONS:

1. Given that animal movement is a very complex and controversial issue there is merit to conduct a workshop harmonising FMD transmission spread through cross-border animal movement.
2. Cross-border movement mapping and value-chain studies need to be undertaken/completed between the identified international movement corridors leading to joint strategies for regulating trade in a manner that reduces the risk of FMD transmission/spread through such movement.

Session 6: Regional Epi and Laboratory networks Introduction

Laboratory network:

SAARC national laboratories need affordable kits for FMD diagnosis and for monitoring of vaccination, as well as support for quality accreditation.

PD FMD India is requested to supply kits or reagents for antigen detection and serotyping, for NSP and SP serology and for RT-PCR. Initially, this may be done free of charge, but a cost sharing mechanism may be developed to ensure sustainability and quality of service. Once established in the new Bhubaneswar facility, PD FMD is requested to establish a diagnostic referral service for sequence characterisation of FMD viruses from the region and their antigenic matching with Indian vaccines. Phylogenies and matching findings should be copied to FAO and OIE in accordance with reference centre mandates supporting global surveillance.

PD FMD is requested to organise an annual proficiency test scheme for laboratories in the region and training in support of quality accreditation at the trainees expense.

A PD FMD focal point will coordinate with nominees from other national laboratories to build upon the existing regional laboratory network and establish regular means of interaction to discuss FMD laboratory related matters.

Epidemiology network

The following items be considered for inclusion to the agenda of the February 2017 Epi Focal Point Meeting

- o Identify priority topics for capacity building in epidemiology in the region and explore the means to conduct the associated necessary training(s);
- o Commit to a monthly communication event between epi focal points via an agreed platform (skype, webinar, HubNet). This should include updates on each country’s recent FMD events as well as the sharing of practical experience(s).

- From the above communication event countries are encouraged to be pro-active in the timely sharing of information via agreed media (e.g. RSU bulletin, WAHIS)
- RSU compile an ongoing list of post-graduate epidemiological focused trainings available in the region and share it via their quarterly bulletin and on their website

Day 3 - 16 December 2016

Session 7. Regional priorities

This session aimed to identify the national and subsequently the regional priorities. Several priorities were named by the country representatives and these include vaccine availability, quality and cost, training on diagnostic, control of unregulated animal movement, sanitization of political will on FMD control, and having regional database for sharing information. The countries agreed that top priorities are vaccines and sharing data and information. Countries and organizations were asked on their contribution to the region. Pakistan expressed their wiliness to share information if requested and explained the process of procurement of vaccine. Vaccine is registered in Pakistan and procured using the FAO tendering process where the vaccine specifications and associated documentation were sent to a number of vaccine manufacturers for selection of the most suited vaccine with affordable price. The price of trivalent vaccine is USD 1.6-1.7 per dose. The quality control testing is done locally on each batch, PVM is carried out and ring vaccination seemed to work for Pakistan. Nepal is willing to share their data on animal movement. OIE proposed to explore the possibility to use similar vaccine procurement mechanism through the OIE vaccine bank following the experience gained with SEACFMD Member Countries. It was suggested that a member of RAG to attend the next SEACFMD in Feb 2017 to learn from and share information. FAO offered to assist in the procurement of vaccine and PVM. EuFMD offered to provide online courses and webinars. The discussion resulted in priorities.

Session 8: Global strategy, component 3 Vaccination and PVM guidelines

Drs David Paton and Giancarlo Ferrari presented the recently published the OIE/FAO FMD vaccination and post-vaccination monitoring guidelines aiming at providing technical guidance. The speakers detailed two topics of the guidelines. With regards to evaluation of the immune response, a lot can be done at local level and detailed guidance was discussed to evaluate vaccine quality and to calibrate PVM tests. The practical tools for vaccination campaign used in Afghanistan were also presented such as the vaccination card to monitor the progress of the campaign by helping in the design of indicators and the vaccine registration book to monitor the number of distributed / used doses.

Dr Gregorio Torres presented Component 3 of the FMD Global Control strategy and the opportunity it offers to initiate actions that will have beneficial consequences on the prevention and control of other major diseases of livestock.

The experience gained in controlling FMD and the enabling environment created for disease control (component 2 of the global control strategy) lead to Veterinary Services having a higher capacity to control other priority animal diseases.

The participants split in 2 discussion groups: one considered Component 3 of the Global Strategy and the other discussed the recently published the OIE/FAO FMD vaccination and post-vaccination monitoring guidelines

Group discussion on Component 3 of the Global Strategy:

The participants were asked to identify some of the already-existing activities to control and prevent regional priority diseases that could be combined with some specific activities aimed at controlling FMD. The advantages and disadvantages of this combined approach and the potential opportunities were extensively discussed. The discussion is summarized below.

- Vaccination against hemorrhagic septicemia, blackleg and PPR are routinely conducted in the region. There is an opportunity to combine these vaccination operations with FMD vaccination provided it does not affect vaccine effectiveness. Implementation protocols would need to be developed to become common practice in some countries.
- The serum samples collected could be tested for multiple diseases. It would reduce costs and contribute to better understanding the role of small ruminants in the epidemiology of the FMD.

Group discussion on vaccination and post vaccination monitoring:

The participants discussed the interest of field protocols to investigate vaccine breakdowns and monitor the impact of vaccination.

With regard to the need for good quality vaccines, the participants agreed that the modalities for a regional cooperative vaccine procurement mechanism to ensure supply of good quality vaccine while ensuring cost effectiveness should be explored. However, acknowledging that it would be a long-term process, existing tools such as tendering process and relevant OIE international standards would ensure virus inactivation, vaccine sterility, potency, safety and efficacy.

They agreed that this should not only be requested from the vaccine manufacturers but also assessed before purchasing the vaccine. This could be achieved via the establishment of local systems for pilot vaccine batch testing to check the quality of vaccines and to calibrate their tests for wider post vaccination immunity studies.

Session 9: Roadmap conclusion & vaccination survey

Roadmap Conclusions

This is the first time the SAARC region has been assessed by a regional advisory group. Prior to this the countries gave a self-evaluation. The PCP stages have also been more clearly defined now.

The chair of the RAG, the CVO of Bangladesh, Dr HBM Golam Mahmud, introduced the findings of the RAG and then handed over to Dr Christianus Bartels (EuFMD) to deliver the country evaluations. 4 of the present countries were assessed by this RAG; Bangladesh (provisional stage 1), Bhutan (provisional stage 2), Nepal (stage 1) and Sri Lanka (stage 1). Afghanistan and Pakistan are SAARC members but are part of West Eurasia so will be assessed by that RAG, nevertheless the SAARC RAG recommended: (i) to consider Afghanistan eligible for stage 2 and (ii) to confirm Pakistan in stage 2. India has an OIE endorsed control Plan, so their stage will no longer be assessed by the RAG, but there were some specific recommendations and requests for information given to India.

Vaccination survey

Dr Ferrari showed the results of the vaccination survey, which 5 out of 8 countries submitted and commented that it would be useful to get the remaining 2 surveys from those attending the workshop. Both Dr Ferrari and Dr Paton emphasised that countries should focus on good quality vaccines and well targeted vaccination programs if there is limited money available.

Active surveillance and post-vaccination monitoring can be done as a method for evaluation of vaccine effectiveness where vaccine matching is not possible.

Need to monitor the virus and the vaccine to make sure the vaccine you are using is correct. The virus may change over time, but look for major changes that indicate a vaccine may no longer work. If you are using good quality vaccines they will give a margin of safety for minor changes due to potency and a good immune response.

Session 10: Final Discussions and Report

- **Round Table Discussion- topics to be included in the 2017 PCP-road map meeting**
This was the last session and chaired by RAG member- (Nepal)- 45 minutes
The chair requested each Member states and other participants to take part in the round table discussion and provide the major points to be included.
 - Follow up from 2016 road map meeting and communication must be maintained between 2016 and next meeting
 - Countries must Focus on evidence-based documents for valid PCP assessment
 - Include the gaps and recommendation from existing meeting- lesson learn from 2016 meeting
 - Always think for Combined control plan (FMD with other diseases)
 - There may good learning from countries from other Gene pools, Lesson learned topics from other region shall be presented
 - Harmonized control plan- for similar gene pools
 - Separate topics on vaccines/vaccine quality and cross border issues must be discussed ○ Submit your vaccination plan, share in the next meeting and that can be discussed and improved
 - Each Member States shall share their control programme
 - Socio-Economic Impact assessments must be included ○ Production system knowledge
 - Indigenous solutions to reduce the loss due to FMD
 - Role of small ruminants in FMD control programme shall be discussed
 - Virus circulation/virus ecology/role if wild life
 - Communication and information sharing
 - Networking and information sharing at national, regional and global level
 - Follow the recommendations of 2016 meeting
 - Priority based on the discussion during interview sessions/ presentations/ interactions
 - Webinar meetings, online courses, networks information sharing may be useful forums
 - Committed by FAO, OIE, RSU-SAARC to support the MSs to prepare for next meeting ○ Better preparation for next meeting

Annex 1: Agenda

PROVISIONAL AGENDA

TAJ SAMUDRA HOTEL, COLOMBO

25 Galle Face Centre Road, Colombo 3, SL; Tel: +94 11 544 6622

Day 1 – 14 December 2016

Time	Activities and Events	Chair/Facilitators/Rapporteur
08:00 – 09:00	Registration	All
09:00 – 09:45	Opening/Welcoming Remarks	Chair: RSU-SAARC Rapporteur: Gregorio Torres
	<ul style="list-style-type: none"> ▪ SAARC Secretariat ▪ OIE ▪ FAO ▪ Ministry of Rural Economic Affairs - Sri Lanka ▪ Objectives and adoption of the meeting agenda 	SAARC OIE FAO Sri Lanka Minister Hon. P. Harrison Santanu Bandyopadhyay (FAO)
09:45 – 11:00	Session 1: PCP-FMD principles and implementation	Chair: Chris Bartels (EuFMD) Rapporteur: Gregorio Torres
11:00 – 11:30	<i>Coffee break</i>	
11:30 – 13:00	Session 2: Global FMD situation and regional roadmap	Chair: Sri Lanka Rapporteur: Santanu Bandyopadhyay
	- Update on the implementation of the global strategy (15 min)	Samia Mehwally (FAO)
	- Overview of global and regional FMD virus Situation (20 min)	David Paton (FMD WRL)
	- Overview of the FMD virus distribution in South Asia (15 min)	Rajiv Ranjan (FMD SAARC RDL)
	General discussion (15 min)	All participants
	- Introduction to the RAG role and responsibilities (15 min)	Laure Weber-Vintzel (OIE)
- RAG election (10 min)	All participants	
13:00 – 14:00	<i>Lunch</i>	
14:00 – 15:00	Session 3: Setting the scene	Chair: MJH Javed (SAARC) Rapporteur: Eran Raizman
	- Progress of PCP-FMD in South Asia (15 min)	Santanu Bandyopadhyay (FAO)
	- Success story: FMD control and containment in Pakistan (20 min)	All participants
- Group discussion (25 min)	All participants	
15:00 – 15:30	<i>Coffee break</i>	
15:30 – 17:00	Session 4: Country reports	Chair: Bangladesh Rapporteur: Laure Weber-Vintzel
	- Presentation (per country) (15 min)	Bhutan, India, Nepal and Sri Lanka
	- Questions and answers (per country) (5 min)	
	- General discussion (10 min)	All participants
17:00	Closure of Day 1	
17:00 – 17:30	Closed sessions: interviews with countries (30 min)	Bhutan, India
17:30 – 18:00	Closed sessions: interviews with countries (30 min)	Nepal, Sri Lanka

Day 2 – 15 December 2016

Time	Activities and Events	Chair/Facilitator/Rapporteur
08:00 – 08:45	RAG meeting	Close session
08:45 – 09:00	Recap day 1 and setting the objective for day 2	Caitlin Holley (OIE)
09:00 – 10:30	Session 4: Country reports (contd)	Chair: Nepal Rapporteur: Silvia Kreindel
	- Presentation (per country) (15 min)	Bangladesh, Pakistan, Afghanistan
	- Questions and answers (per country) (5 min)	
	- General discussion (10 min)	All participants
10:30 – 11:00	<i>Coffee break</i>	
11:30 – 13:00	Session 5: Cross border coordination for movement control	Chair: India Rapporteur: Eran Raizman
	- SEACFMD: The risk of intraregional movement (15 min)	Ian Dacre (OIE)
	- Introduction to group discussion (5 min)	Santanu Bandyopadhyay (FAO) and Ian Dacre (OIE)
	- Group discussion (50 min)	
	o Group 1: India, Bangladesh, Bhutan and Nepal	
	o Group 2: Pakistan, Afghanistan Sri Lanka and Maldives	
	- Group reports (per group) (10 min)	Group rapporteurs
	- Plenary discussion and regional priorities (30 min)	All participants
13:00 – 14:00	<i>Lunch</i>	
14:00 – 16:00	Session 6: Regional Epi and Lab networks	Chair: David Patton Rapporteur: Ian Dacre
	- Introduction to group discussion (20 min)	Samia Metwally (FAO) and Laure Weber-Vintzel (OIE)
	- Group discussion (50 min)	
	o Group 1: One rep per country	
	o Group 2: One rep per country	
	- Group reports (per group) (10 min)	Group rapporteurs
	- Plenary discussion and regional priorities (30 min)	All participants
16:00 – 17:00	Session 7: Regional priorities	Chair: RAG member Rapporteur: Samia Metwally
	- Introduction to group discussion (5 min)	Chris Barbels (EuFMD), Caitlin Holley (OIE)
	- Group discussion (25 min)	
	o Group 1: One rep per country	
	o Group 2: One rep per country	
	- Plenary discussion and regional priorities (30 min)	All participants
17:00	Closure of Day 2	
17:00 – 17:30	Closed sessions: interviews with countries (30 min)	Afghanistan, Pakistan
17:30 – 18:00	Closed sessions: interviews with countries (30 min)	Maldives, Bangladesh

Day 3 – 16 December 2016

Time	Activities and Events	Chair/Facilitators/Rapporteur
08:00 – 09:00	RAG meeting	Close session
08.45 – 09.00	Recap day 2 and setting the objective for day 3	Santanu Bandyopadhyay (FAO)
09:00 – 10:30	Session 8: Component 3 of the Global Strategy and and post-vaccination monitoring guidelines	Chair: Khadak Singh Bisht (FAO) Rapporteur: Laure Weber-Vintzel
	- Introduction to group discussion (20 min)	Samia Metwally (FAO), Gregorio Torres (OIE)
	- Group discussion (50 min)	
	o Group 1: One rep per country	
	o Group 2: One rep per country	
	- Group report (per group) (10 min)	Group rapporteurs
	- Plenary discussion and regional priorities (30 min)	All participants
10:30 – 11:00	Coffee break	
11:00 – 12:00	Session 9: Roadmap conclusion	Chair: Samia Metwally (FAO), Laure Weber-Vintzel (OIE) Rapporteur: Caitlin Holley
	- Presentation of roadmap based on assessment by the Regional Advisory Group	Regional Advisory Group
	- Summary of the vaccination survey	Silvia Kreindel (FAO)
	- Plenary discussion	All participants
12:00 – 12:45	Session 10: Final Discussions and Report	Chair: RAG member Rapporteur: Khadak Singh Bisht
	- Roundtable discussion: Topics to be included in the 2017 Roadmap meeting	All participants
	- Vote of Thanks	FMD-WG, SAARC, RSU
12:45	Closure of meeting	

Annex 2: Participants

 GF-TADs <small>GLOBAL FRAMEWORK FOR THE REGIONAL CONTROL OF TRANSDUCIBLE ANIMAL DISEASES</small>	The 3rd FMD Roadmap Meeting for SAARC Member States 14-16 December 2016, Colombo, Sri Lanka
	LIST OF PARTICIPANTS

No	Name	Title/Organization	Country
1	Said Abul Hussain Qanee	General Director of Epidemiology	Afghanistan
2	HBM Golam Mahmud	Director, Livestock Research Institute, CVO, Bangladesh	Bangladesh
3	Md Farhad Hussain	Principle Scientific Officer, FMD Section, Livestock Research Institute	Bangladesh
4	Lokey Thapa	Livestock Production Officer, National Centre for Animal Health, Department of Livestock	Bhutan
5	Chimi Jamtsho	Veterinary Officer, District Veterinary Hospital, Department of Livestock	Bhutan
6	Sujit K Dutta	Assistant Commissioner-AH, Dept of Animal Husbandry, Dairying & Fisheries	India
7	Mukul Upadhyaya	Senior Veterinary Officer, Veterinary Epidemiology Center, DLS	Nepal
8	Qurban Ali	Animal Husbandry Commissioner Chief Veterinary Officer	Pakistan
9	Sher Muhammad Khan	Director General-Livestock Ext KP Peshawar	Pakistan
10	T A C Tiskumara	Director General, Chief Veterinary Officer	Sri Lanka
11	A. Sivasothy	Additional DG (Animal Health)	Sri Lanka
12	R Hettiarachchi	Additional DG (Veterinary Research)	Sri Lanka
13	M D N Jayaweera	Director, Animal Health	Sri Lanka
14	H. Kothalawala	Head of Division, Animal Virus Lab, Veterinary Research Institute	Sri Lanka
15	Rajeev Ranjan	Regional Diagnostic Lab-FMD, INDIA	India
16	Laure Weber Vintzel	FMD-WG	OIE
17	Gregorio Torres	Charge de mission, FMD-WG	OIE
18	Caitlin Holley	FMD-WG	OIE
19	Ian Dacre	FMD Expert, OIE-SEACFMD	OIE

20	MUH Jabed	Director, Agriculture, Rural Development and Food Security	SAARC Secretariat
21	Samira Muewally	Senior Animal Health Officer FMD-WG	FAO HQs
22	Silvia Kreindel	FMD Expert	FAO HQs
23	Eran Raizman	Head of EMPRES-I Animal Health Services-AGAH	FAO HQs
24	Aminuddin Nasari	Project Coordinator, FAO AF	FAO
25	Giancarlo Ferrari	FMD Expert	FAO
26	Santana Bandhyopadhyay	RSU Coordinator, RSU-SAARC	FAO
27	Khadak Singh Bisht	RSU Assistant Coordinator, RSU-SAARC	FAO
28	Jie Wang	Programme Officer, RSU-SAARC	FAO
29	Christophus Bartsch	Component Manager for PCP-FMD	EU-FMD
30	David James Paton	Veterinary Advisor, FMD Ref Lab-Perth	EU-FMD
31	Ms Nina Brandstrup	FAO Rep in Sri Lanka	FAO Sri Lanka
32	Tilaka Dissanayake	Secretary, FAO Sri Lanka	FAO Sri Lanka
33	Niranjala Guneratne		FAO Sri Lanka
34	H.E. Mr. M. Riaz Hamidullah	High Commissioner Bangladesh High Commission	Sri Lanka
35	Hon. P. Harrison	Minister of Rural Economic Affairs.	Sri Lanka
36	Hon. Amir Ali	Deputy Minister, Ministry of Rural Economic Affairs	Sri Lanka
37	Renuka Ekahamske	Secretary, Ministry of Rural Economic Affairs	Sri Lanka
38	R. P. M. Pathiratne	Add Secretary (Livestock Development), Ministry of Rural Economic Affairs.	Sri Lanka
39			
40			
41			

Annex 3- Countries' report

Afghanistan



PCP-FMD Stage

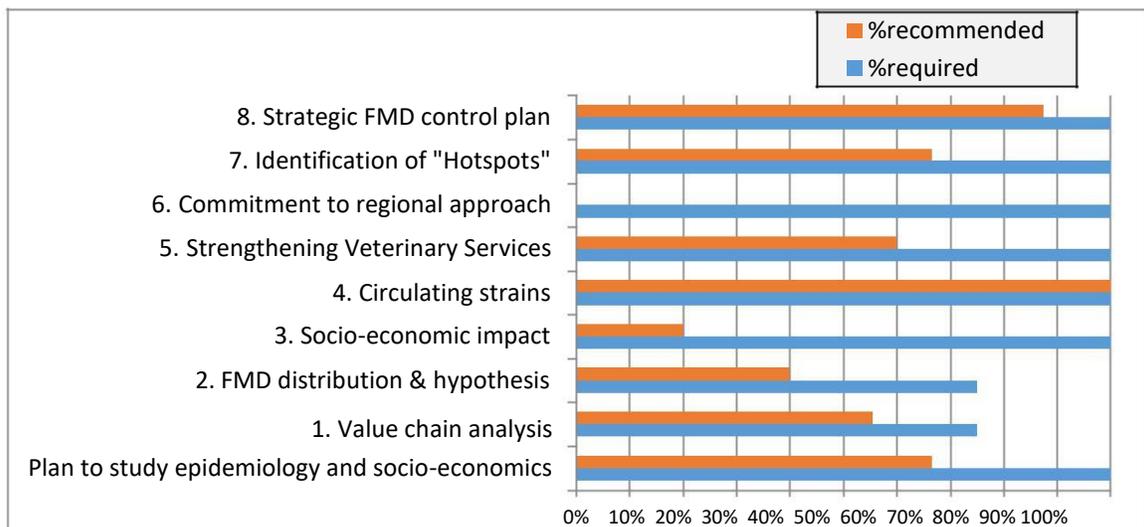
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2016 1

OIE PVS
evaluation
planned for
2017

Provisional Roadmap 2016

Achievement of required and recommended outcomes for the PCP Stage 1



FMD outbreaks & surveillance:

- Current surveillance makes use of 340 so-called Veterinary Field Units (paravets) under the Sanitary Mandate Contracting Scheme, engaging private sector (World Bank supported project)
- A total of 159 tissue samples were submitted to Central Veterinary Diagnostic and Research Laboratory of which 122 tested positive (serotype O (82), Asia1 (31), A (4), unknown (5))
- Characterization by WRL Pirbright: O/ME-SA/PanAsia2/ANT-10, A/Asia/Iran05/FAR11 and Asia1/Asia/Sindh08
- NSP-Ab sero-survey in dairy cattle (under FAO project) with 20.2% (0-12 months) to 45.9% (>24 months) testing positive
- Economic impact study: loss of 58% of potential production in the 30 days following onset of clinical disease

FMD Control Measures:

- Risk-based Strategy Plan has been developed with emphasis on dairy sector and addressing gaps (in accordance with PVS critical competencies)
 - Strengthen response to outbreaks
 - Improving legislative framework
 - Implement formal laboratory quality assurance
 - Strengthen involvement of private stakeholders in reporting and control
- Targeted preventive vaccination in dairy sector is supported through FAO-Japan project

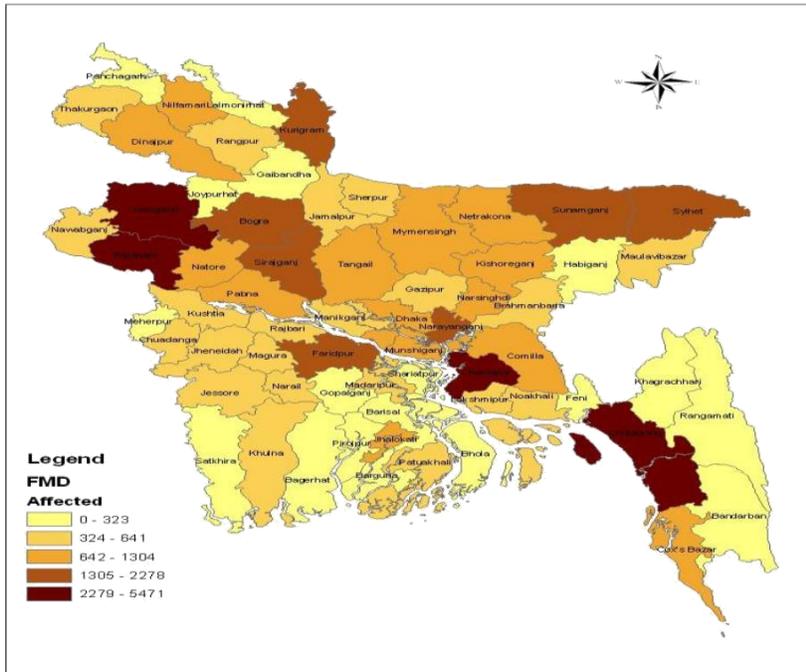
Other notes and priorities for the future:

- RBSP for 3 years, budget apparently guaranteed for the 3-year period (Japanese project and government subventions)
- Expected assessment of PCP-FMD Stage 2 is seen as a way to get more political recognition and commitment from Afghan government
- Requirements to enter PCP Stage 2 are fulfilled. However, as Afghanistan is with the Roadmap of West-Eurasia, the assessment will be done by that Regional Advisory Group with positive support from this meeting

Recommendations from the Regional Advisory Group:

See last point in textbox above

Bangladesh



PCP-FMD Stage

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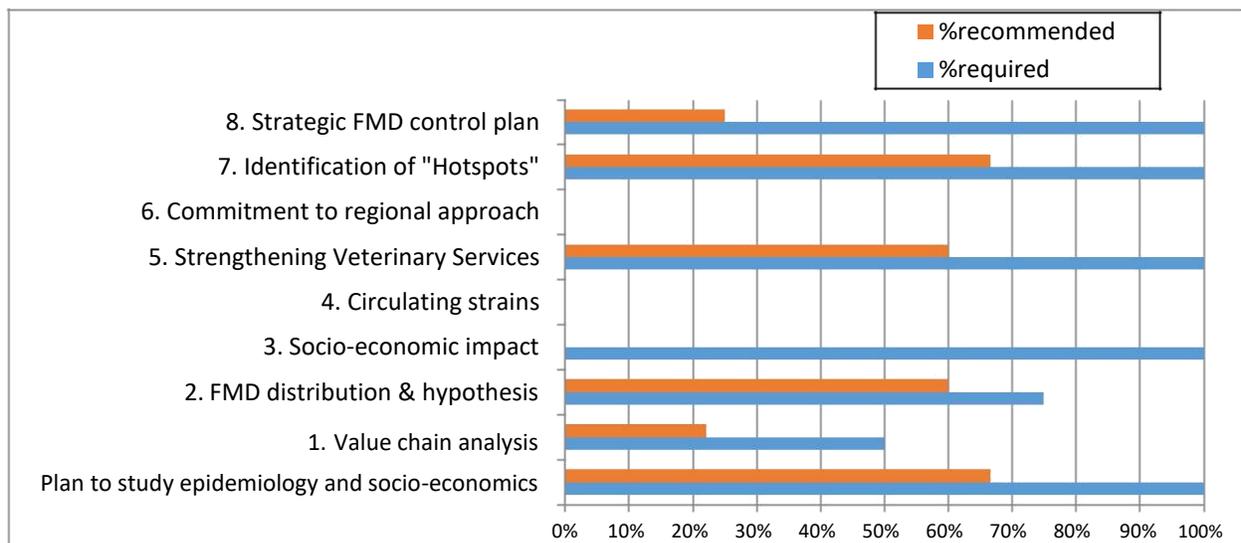
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OIE PVS evaluation

200?

Provisional Roadmap 2016

Achievement of required and recommended outcomes for the PCP Stage 1



FMD outbreaks & surveillance:

- FMD serotype O is predominant with less incidence of serotypes A and Asia 1
- Hotspot identified as unregulated animal movement
- Samples collected from outbreaks are awaiting analyses given lack of reagent and other diagnostic means

FMD Control Measures:

- Effort to mitigate incursion of FMD virus through unregulated animal trade through increasing number of quarantine stations
- Produce autogenous vaccine about 1 Mil doses a year
- Vaccination is targeted to cattle population
- Outbreak detection and response are defined however, no information on level of implementation and compliance

Other notes and priorities for the future:

During the country presentation and the interview, it was identified that training is needed on:

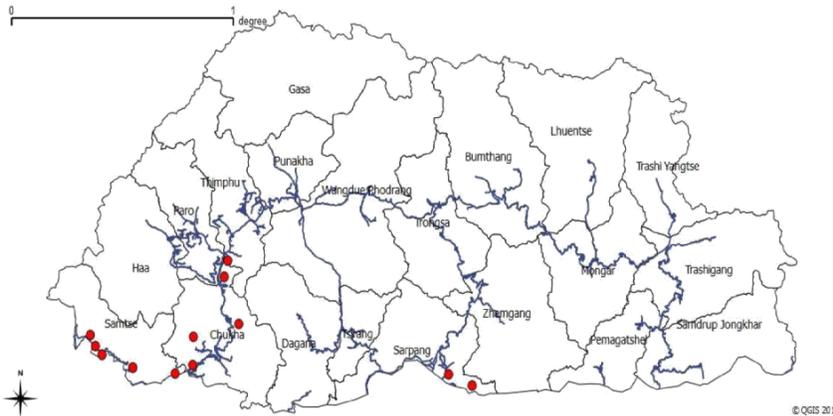
- Diagnostics and epidemiology--- submit a request to OIE office in Japan for assistance
- Sample collection and field investigation-- submit a request to EuFMD to participate in the real-time training in Nepal

Recommendations from the Regional Advisory Group:

It was recognised that there was little known about the epidemiology and impact of FMD in Bangladesh, being the objective of PCP-FMD Stage 1:

- Need to conduct socioeconomic analysis in different production systems. This may also serve the basis for additional benefit-cost analysis of intended mitigation measures
- Submit samples to PD-FMD or WRL for complete analysis including vaccine matching
- Develop risk assessment plan and submit to FMD WG by June 2017 to reach to PCP stage 1

Bhutan



PCP-FMD Stage

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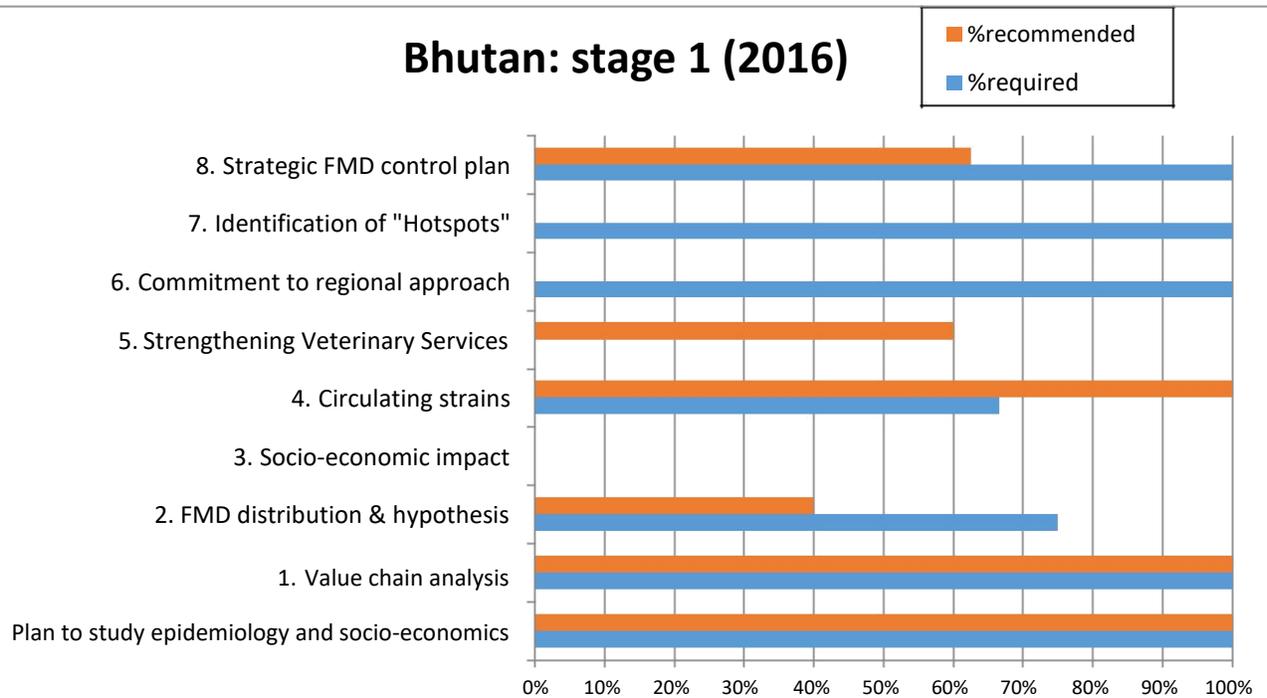
OIE PVS gap analysis

2015

Provisional Roadmap 2016

Achievement of required and recommended outcomes for the PCP Stage 1

Bhutan: stage 1 (2016)



FMD outbreaks & surveillance:

- In 2016, 13 FMD outbreaks were notified, all serotype for serotype O
- Since 2013, no samples were submitted for further characterization
- Samples collected for NSP and PVM surveillance but no available funding to conduct the analysis
- Syndrome surveillance in place with animal health service centres throughout country
- Upon confirmation of an FMD outbreak, surveillance is carried out in infected and (emergency) vaccination zone by Rapid Response Team.
- In addition, animal movements are banned and awareness is raised by campaigns
- Participation in proficiency testing for FMD diagnosis

FMD Control Measures:

- A vaccination plan is in place based on identification of high, medium and low risk areas and applying 1 (low and medium risk area) or 2 campaigns (high risk area) per year
- A booster vaccination (1 month after the initial vaccination) is applied in calves
- Animals are vaccinated prior to being moved

Other notes and priorities for the future:

- Sero-surveys are planned to be implemented for both assessing the level of infection (NSP-Ab) and for post-vaccination monitoring (SP-Ab)
- Current FMD control plan will be adapted to focus on risk-assessed disease prevention and control, including improving border security and quarantine check-posts
- With experience gained for FMD control, development of risk-based disease control for Rabies, PPR, Brucellosis and Leptospirosis is planned for
- There are plans to study the effectiveness of the current FMD control plan, conduct FMD Vaccine effectiveness, study the role of wildlife in the epidemiology of FMD and to assess the economic burden of FMD

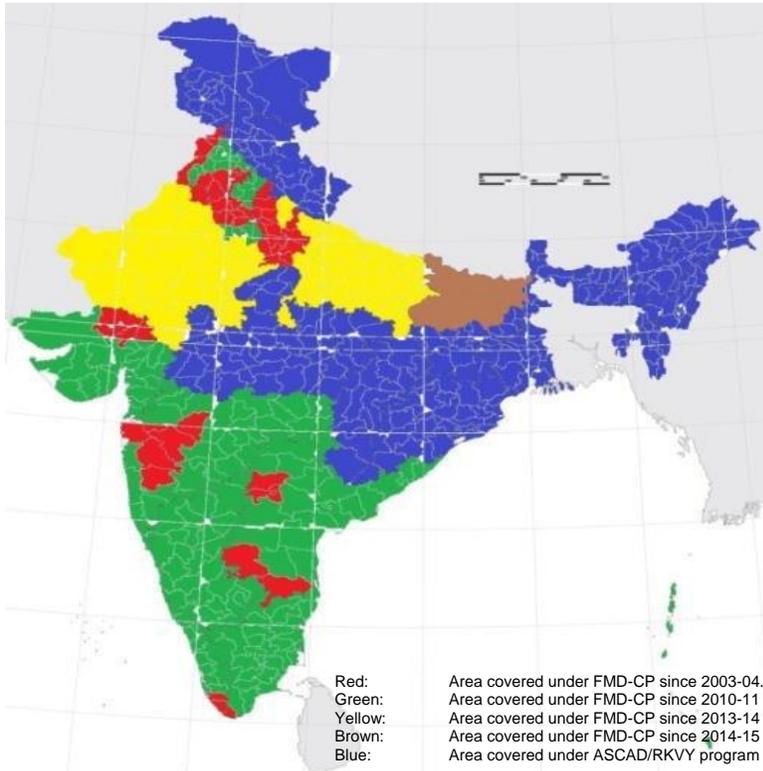
Recommendations from the Regional Advisory Group:

- Finish PCP stage 1 requirements including:
 - Risk identification supported by NSP results (provide data within 6 months)
 - A socio-economic assessment of the impact of FMD
- Update the control plan with budget, reference to components 2 and 3 of the Global Strategy for FMD control and a more detailed section on monitoring and evaluation (Logframe) of the FMD Strategy plan

Submit the updated plan/RBSP for FMD WG by June 2017

FMD WG to provide the feedback on the updated plan within one month of receipt

India



PCP-FMD Stage

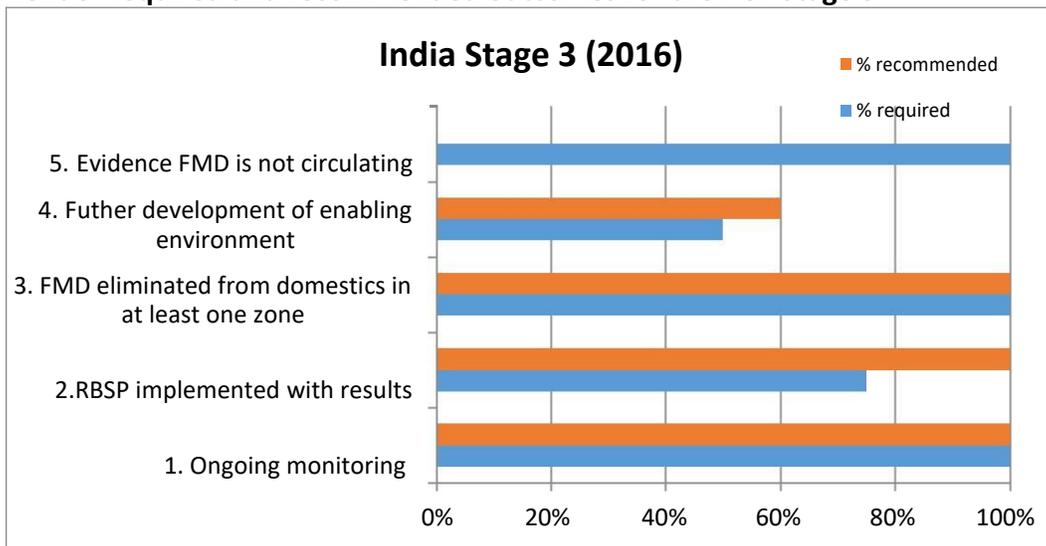
2013 3
 2016 *

OIE PVS evaluation

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* Country has entered the OIE pathway (endorsement of its national official control programme for FMD) and is therefore annually assessed by the OIE. It was therefore not assessed at the Roadmap meeting.

Achievement of required and recommended outcomes for the PCP Stage 3



FMD outbreaks & surveillance:

- 106 outbreaks reported so far in 2016, mainly from areas where the FMD Control Plan is not implemented.
- Most of the outbreaks are related to serotype O (O/ME-SA/Ind2001d), as well as A (Genotype 18/VP359-deletion lineage /Clade18c) and Asia 1 (As/sub-lineage CII (Group VIII))
- An average of 22.5% of large ruminants (small ruminants are not included) test NSP-Ab seropositive with some disparities between regions (e.g. 3% in Punjab)
- Post-vaccination monitoring is conducted with a minimum of 200 samples per district. The levels of seroconversion after vaccination vary considerably (between 30 and 98%).
- Response to outbreaks: Immediate report over mobile
→ email to the concerned officers / Movement restrictions and biosecurity measures / sample collection/ diagnostic within 3-7 day / Ring vaccination within the radius of 10 km / public awareness / Legislative measures for movement control

FMD Control Measures:

- Zoning approach with an FMD Control Plan (FMD-CP) covering progressively an extended territory
- Mass Vaccination in districts where the FMD Control plan focuses using trivalent vaccines for cattle and buffalo, twice a year
- Immunity coverage varies depending on the serotype and the moment when the region was included in the CP Until 80-90%.
- Legislation and check post in place to control the movement of animals into the zones where FMD has been controlled – movement permit.
- No incentive for farmers to report but once the disease is reported the veterinary visit and vaccination are free of cost
- Control of FMD is aligned with control of other infectious diseases such as Haemorrhagic Septicaemia

Other notes and priorities for the future:

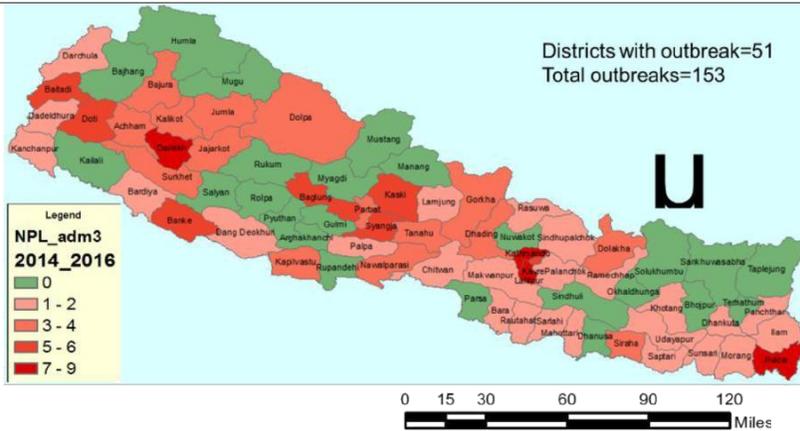
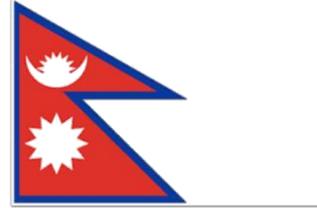
- Estimated annual direct loss of more than Rs 20,000 Crore due to FMD - Indirect losses due to reduced work capacity; abortions, subsequent infertility and sterility have not been quantified.
- Majority of the livestock owners perceived FMD had caused permanent asset loss – Internal trade impact is important
- Quality of vaccine (efficacy and stability) is of concern
- Research: development of a thermostable vaccine (cold chains considered as representing 80% of the costs of the vaccination programme), role for FMD in wild life (virus isolated in elephants)
- For three zones (Punjab, Maharashtra, Telangana) a dossier has been submitted to OIE for recognition of “FMD free zones where vaccination is practiced”

Recommendations from the Regional Advisory Group:

Indian livestock play a key role of FMD virus circulation in this region. As such, FMD control in India determines the progressive control of FMD in the whole region.

- Share the control plans for North and North-East India with SAARC and the FAO/OIE FMD-WG
- Share virus sequencing within the SAARC Network of the OIE/FAO FMD Reference Laboratories
- Provide evidence on the progress of FMD control, based on robust monitoring and evaluation performance indicators and categorized by species, age categories, production system and states
- Explore the role of small ruminants in the epidemiology of FMD in India
- Assess the risks of animal livestock movements into and around the intended FMD-free zones
- Have a OIE-PVS evaluation conducted

Nepal



PCP-FMD Stage

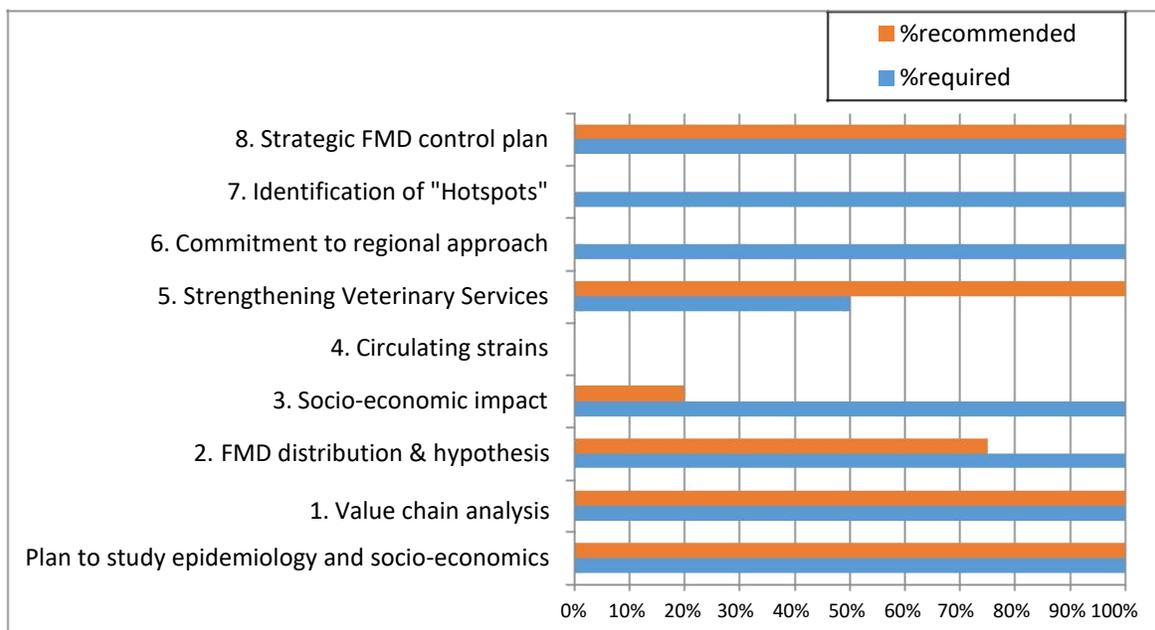
2013 1

2016 1

OIE PVS
evaluation 2008

Provisional Roadmap 2016

Achievement of required and recommended outcomes for the PCP Stage 1



FMD outbreaks & surveillance:

- 133 outbreaks of FMD were reported in 51 districts in large and small ruminants
- Only serotype O diagnosed since 2012 (Panasia2/Kat15 and Ind2001d)
- Outbreaks are investigated to identify the main risk factors (introduction of livestock into farm and visiting of professionals and livestock owners)
- NSP-surveys and post-vaccination monitoring surveys conducted in some districts. Issues with inference of results
- Start made with assessing economic impact for different production systems in different regions
- A number of value-chain analysis studies have been conducted in recent years indicating large number of cross-border livestock movements (cattle, buffalos, goats, sheep and even pigs)

FMD Control Measures:

- A national FMD working group and a national Epidemiology network is established
- More than 100 district veterinary officers have taken part in EuFMD's FMD real-time training course between 2011 and 2016
- A national strategy for FMD control 2016-2025 has been approved by the Ministry of Livestock Development. This strategy foresees a progressive regional approach starting in the Far West and Far East region. The main objective of FMD control is to open the market for export of dairy products from Eastern and Western parts of the country
- For years to come, the number of FMD vaccine doses will increase 2-3 times to between 1 and 2 million targeting the identified high-risk areas
- Post-vaccination monitoring study conducted in 2014 – 2016, with between 23 to 96% (average 76%) animals testing positive
- Plans under development to combine FMD and PPR control programs (vaccination, sero-surveys)

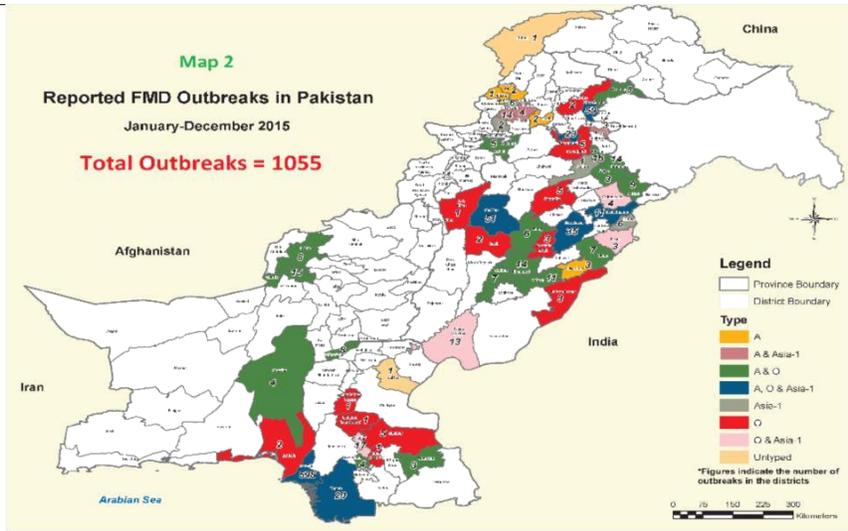
Other notes and priorities for the future:

- More comprehensive and better implemented FMD NSP-Ab surveys across the different regions and productions systems are needed to better define risk hotspots
- The results of such NSP-Ab sero-surveys will help finalizing the developing the Risk based Strategy Plan
- Under the Livestock Sector Innovation Project (World Bank), local vaccine production is planned for. This will further require support in vaccine quality assessment including matching and post-vaccination monitoring

Recommendations from the Regional Advisory Group:

- Need to further define epidemiologic role of small ruminants in transmission and impact of FMD to support decision making on a vaccination strategy for small ruminants
- FMD should become a notifiable disease by law in 2017 (legislation ready for approval)
- Monitoring and evaluation mechanisms need to be put in place to assess the effectiveness of ring vaccination and to investigate vaccine failures

Pakistan



PCP-FMD Stage

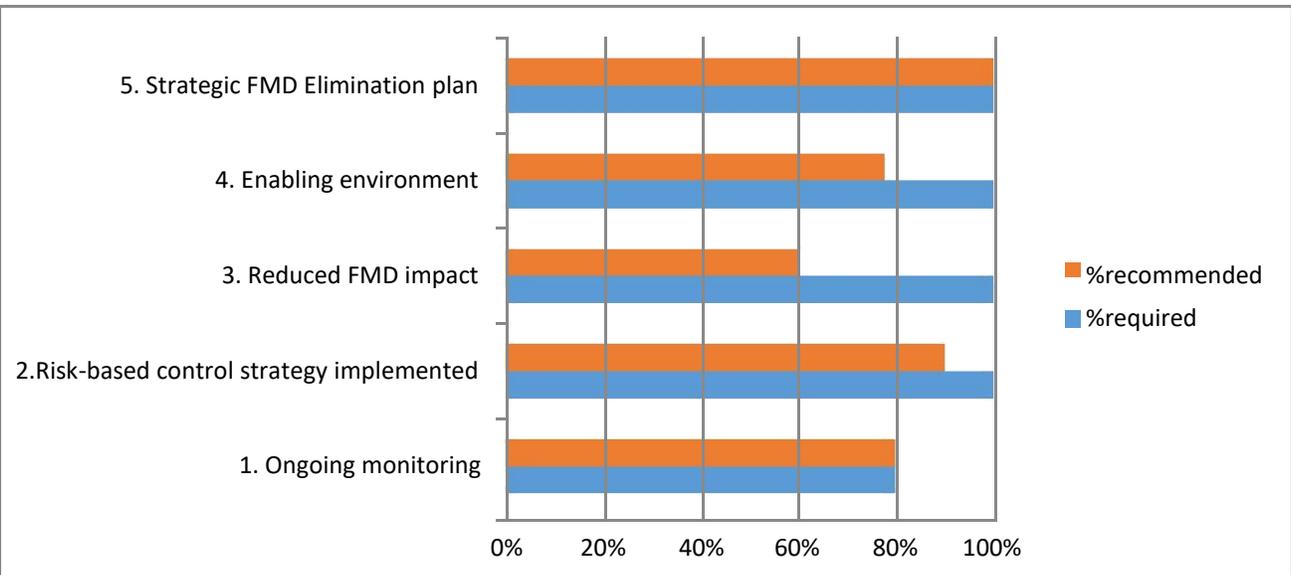
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Provisional Roadmap 2016

Achievement of required and recommended outcomes for the PCP Stage 1



FMD outbreaks & surveillance:

- 1126 reported FMD outbreak between January and September 2016
- Type Asia1 (31%), A (16%), O (27%), mix (2%)
- Characterization: Asia1/Sindh08, A/Iran05/Far11 and A/Iran05/Far-09, O/PanAsia2/Ant-10
- Outbreak investigation roles and responsibilities are well defined with tasks for local and central level veterinary services including feedback of information to local level and livestock owners, provision of sample collection and dispatch materials and covering of expenditures on these
- Outbreak investigation includes treatment of affected livestock and advice on prevention of new infections and isolation of affected livestock

FMD Control Measures:

- Mass vaccination in dairy colonies, including booster vaccination (repeat vaccination in primo-vaccinates after 30 days)
- It was assessed that the milk production is affected between 60 to 70% during disease period and 40 to 50% after recovery
- Current FMD strategy focuses on
 - Strengthening the liaison between federal and provincial levels to harmonize procedures for control and prevention
 - Strengthen surveillance by establishing a national FMD information centre
 - Promotion of the use of quality vaccine (higher potency)
 - Improving the legal framework for FMD control
 - Promote intensive involvement of stakeholders
- FMD control is governed by a Steering committee and a technical working group, while the implementation is monitored by a TAD controlling officer

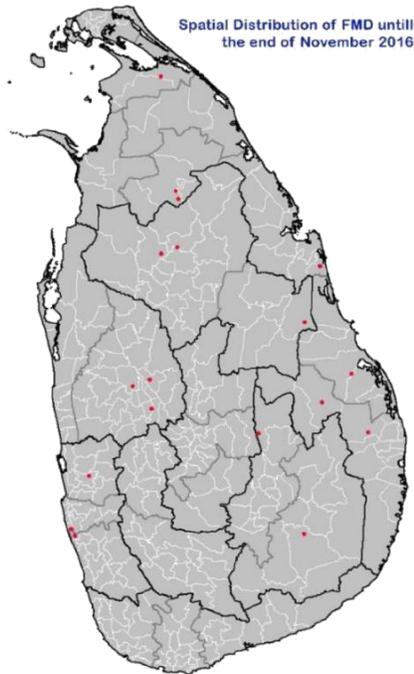
Other notes and priorities for the future:

- Further elaboration of the risk-based strategy for FMD control in a six-year plan (2017-2022) with the ambition to move to Stage 3 in 2022 and to follow a zoning approach in Punjab region
- As Pakistan is with the Roadmap of West-Eurasia, the assessment will be done by that Regional Advisory Group. In the view of this SAARC RAG, Pakistan is eligible to remain in PCP-FMD Stage 2 with the following remarks:
 - Consider or reflect upon the assumptions taken with regards to the role of small ruminants and changes of predominant serotypes over years
 - Further develop a quantitative approach to monitoring and evaluation

Recommendations from the Regional Advisory Group:

See last bullet point in textbox above

Sri Lanka



PCP-FMD Stage

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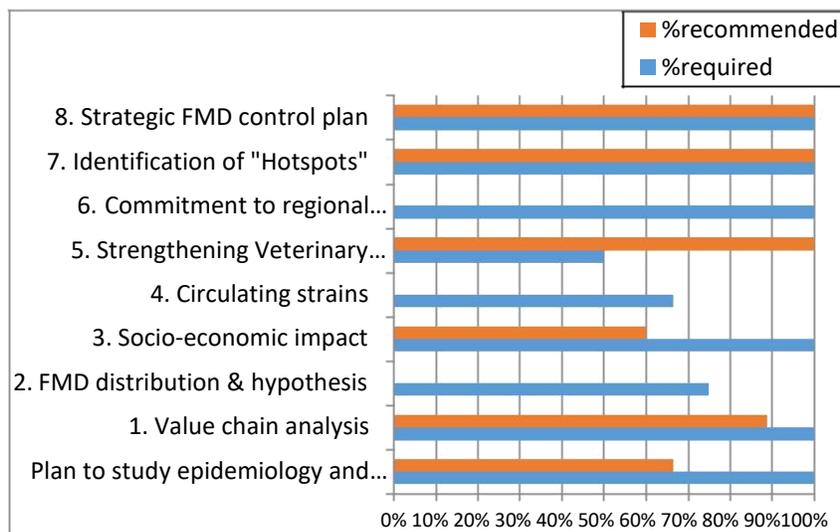
2016 **1**

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evaluation**

2008

Provisional Roadmap 2016

Achievement of required and recommended outcomes for the PCP Stage 1



FMD outbreaks & surveillance:

- 21 outbreaks detected in 2016 (until end of November), 33 in 2015, 212 in 2014 based on clinical surveillance by 320 divisional veterinary offices
- All FMD viruses genotyped as (O/ME-SA/Ind2001d). Strain identification & characterisation at WRLFMD-Pirbright
- No serologic surveillance (NSP-Ab) performed but planned for 2017, including wildlife
- Risk hot spots apparently identifies for FMDV introduction into Sri Lanka and for internal spread within the country (illegal movement of animals, feral animals, 'salvation' of animals to be killed for ethical or religious purposes)

FMD Control Measures:

- Control plan foresees in vaccination twice a year in endemic areas (half the animal population).
- Combination of the vaccination against haemorrhagic septicaemia and FMD since 1999 (freedom from HS in 2015)
- Production of a local vaccine answering to 1/3 of the national needs. Importation of a monovalent vaccine from India
- No vaccine matching test made.
- Enhancement of animal identification system
- Awareness program for political & religious leaders and welfare activists
- Public-private partnership (milk collecting and processing organisations)
- Updating the regulations for animal disease management

Other notes and priorities for the future:

- National budget, 20 million SLR, without international project
- Amendments of relevant acts (*Animal Diseases Act, No.59 of 1992 and Animal Act, No.29 of 1958*)
 - Need for upgrading the current FMD control plan to incorporate a risk-based approach and inclusion of monitoring of performance indicators on actual implementation of program
- Plans for post-vaccination monitoring (coverage, sero-conversion)
- Plans for sero-survey in large ruminants and feral buffalos
- Plans to upgrade the laboratory facilities and local vaccine production and quality

Research plans (Genetic characterization of FMD isolates, matching of vaccine strains with field isolates, sero-monitoring in cattle & buffaloes, sero-surveillance in wild & feral buffaloes)

Recommendations from the Regional Advisory Group:

- Request support in re-drafting the FMD control plan, incorporating a risk-based approach by including identified risk hotspots and definition of component objectives (for FMD control) based on these risk hotspots
- Conduct an NSP-Ab sero-survey to estimate level of infection in different production systems, age-categories and geographical regions, while assessing the association with putative risk factors
- Establish a quality-assurance approach for the local vaccine production