



Regional Roadmap Meeting III
Foot-and-Mouth Disease
Progressive Control Pathway

Eastern Africa

Entebbe, Uganda
3 – 5 July 2018

Acknowledgements

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FAO and the OIE also acknowledge with much gratitude the valuable and continuous technical support of EuFMD experts before, during and after the meeting, as well as of the experts from the Network of OIE/FAO Reference Laboratories for FMD (Pirbright Institute and Botswana Veterinary Institute).

Finally, the FAO and the OIE would like to express their deep appreciation to all countries of the Eastern Africa FMD Roadmap and the Regional Economic communities (Intergovernmental Authority on Development - IGAD and East African Community -EAC) for their commitment and contributions over the years.

¹Burundi, Democratic Republic of Congo, Comoros, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan, Tanzania and Uganda. Rwanda participated via a video link, while Djibouti did not participate.

Abbreviations

AU-IBAR	African Union - International Bureau for Animal Resources
AU-PANVAC	Pan African Veterinary Vaccine Center of African Union
BVI	Botswana Vaccine Institute
CVO	Chief Veterinary Officer
EAC	East African Community
EAREN	Eastern Africa Regional Epidemiology Network
EARLN	Eastern Africa Regional Laboratory Network
ECTAD	Emergency Centre for Transboundary Animal Diseases
EuFMD	European Commission for the Control of Foot-And-Mouth Disease (an Inter-Governmental Commission based in the FAO)
FAO	Food and Agriculture Organisation of the United Nations
FMD	Foot and mouth disease
FMD WG	FMD Working Group
GF-TADs	Global Framework for the Progressive Control of Transboundary Animal Diseases
IGAD	Intergovernmental Authority on Development
ICPALD	IGAD Centre for Pastoral Areas and Livestock Development
MOU	Memorandum of understanding
NVI	Ethiopian National Veterinary Institute
OIE	World Organisation for Animal Health
PCP	Progressive Control Pathway
PPR	Peste des petits ruminants
PVM	Post-Vaccination Monitoring
PVS	Performance of Veterinary Services
RAG	Regional Advisory Group
RAHN	Regional Animal Health Network
RBSP	Risk Based Strategic Plan
RECs	Regional Economic Communities
SMP	Standard Methods and Procedures
TADs	Transboundary Animal Diseases
ToRs	Terms of Reference
WRL-FMD	World Reference Laboratory for Foot and Mouth Disease, Pirbright Institute, UK

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Meeting report

Background

Livestock plays a major role in world agriculture and represents approximately 43% of the agriculture's contribution to national gross domestic product (GDP) as a global average. The livestock sector makes an important contribution to the agricultural industry in Eastern Africa.

Foot and Mouth Disease (FMD) severely affects the production of livestock, disrupting regional and international trade in animals and animal products. That detrimental impact of FMD is exceptionally relevant in developing countries, where the losses in production, utility and income can significantly impact on livelihoods and food security, especially for small holders but also on trade among large producers.

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 FMD control Strategy in 2012. Since the Global FMD control Strategy was endorsed, several initiatives were identified to establish an enabling environment to make FMD control a feasible option, particularly for countries that are affected the most by this disease.

The eastern Africa region is home to approximately 170 million head of cattle (with the Federal Republic of Ethiopia having the highest number at almost 60 million). The region also has almost 300 million small ruminants, of which 71 million are in the Sudan alone, and 8 million swine (with Republic of Uganda having 50%). These livestock resources are greatly constrained by frequent FMD outbreaks. The sub-region also prides substantial wildlife population within game parks and reserves that complicates the epidemiology of FMD.

Death of young animals, reduced productivity through loss of milk and meat or reduced draft animal power for freight transport and ploughing are main direct losses from FMD, coupled with indirect losses from restrictions or barriers to international trade of animals and their products.

FMD is endemic in this region and confirmed outbreaks are closely associated to FMD virus pool 4 that includes serotypes O, A, SAT1, SAT2, and SAT3. (Figure 1)



Figure 1. FMD virus pool distribution in the African continent

East African countries invited to the meeting included Burundi, Comoros, Democratic Republic of Congo, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, South Sudan, Sudan, Tanzania and Uganda. Djibouti did not attend while Rwanda participated via a video and teleconference.

The progressive control pathway for FMD (PCP-FMD) is a tool utilised at country level, however, it considers that FMD control efforts should be coordinated at regional level. It offers a structured stepwise approach to FMD control. The country starts with gaining a better epidemiological understanding of FMD (stage 1), gradually implementing risk-based control measures (stage 2), before evolving to stage 3, at the end of which a country may apply for OIE endorsement of the official control programme for FMD aiming to eliminate FMDV circulation (Stage 4). The higher stages correspond to the country eventually being recognised by the OIE as free from FMD with or without vaccination. A rather relevant concept introduced with the PCP-FMD is that countries may not necessarily aim to eradicate FMD but rather reduce the economic losses using cost effective investments to control and prevent clinical disease.

Two FMD Roadmap meetings have already been hosted in the region: the first in Nairobi in March, 2012 and the second in Kigali, 2014. This third meeting was held on 3-5 July, 2018 in Entebbe, Uganda, under the GF-TADs umbrella, with technical support from the European Commission for the control of FMD (EuFMD). The meeting was hosted by the Government of the Republic of Uganda with financial support from the Government of the Republic of Italy.

Objectives

The objectives of the third regional *Progressive Control Pathway for FMD* (PCP-FMD) meeting were:

1. To share information on FMD virus circulation within the Eastern African FMDV ecosystem and support the implementation of vaccination strategies as well as experiences of successful control measures;
2. To gain an understanding of the PCP –FMD principles and implementation;
3. To assess the progress of FMD control in Eastern Africa countries;
4. To update the Roadmap for regional FMD control in Eastern Africa countries between 2018 and 2025, using the principles of the PCP-FMD; and
5. To strengthen the support of the FAO and the OIE to the Eastern Africa Member Countries with regard to the PCP-FMD.

Expected outcomes

The expected outcomes of the meeting were:

1. Improved collaboration on FMD control among Veterinary authorities in the Eastern Africa Member Countries;
2. Participants are familiarised and updated on the current regional FMD situation, main risk factors for virus transmission and the PCP principles;
3. The PCP stages of the Eastern Africa Member Countries is assessed and the East African FMD roadmap 2018-2025 is updated;
4. FMD control gaps are identified and lessons learnt are shared among participating countries;
5. Participants have a better understanding of the use of appropriate vaccines;
6. Support of the FAO and the OIE to the Eastern Africa Member Countries is strengthened with regard to the FMD *progressive control pathway* (PCP);
7. A network of specialists is strengthened and able to relay information at the national and regional level, through the *Eastern Africa Regional Laboratory Network* (EARLN) and corresponding *Epidemiology Network* (EAREN); and
8. National PCP-FMD points of contact are identified for the region.

SESSION 1. Opening Remarks

The meeting was officially opened by Mr Hon Ssempijja Bamulangaki, Minister of Agriculture, Animal Industries and Fisheries of the Republic of Uganda, in the presence of H.E. Amb Domenico Fornara, Ambassador of Italy in Uganda; Dr Rose Ademum Okurut, OIE Delegate of Uganda; Ms Priya Gujadhur, Ag FAO Representative of Uganda; Dr Henry Wamwayi, representing the Director, African Union - International Bureau for Animal Resources (AU-IBAR); Dr Keith Sumption, EuFMD Secretariat; and Dr Samuel Wakhusama, OIE Sub-Regional Representative for Eastern Africa.

SESSION 2. Progress along the Progressive control pathway for FMD in the region

The Global FMD progressive control Pathway

[Keith Sumption - Nick Lyons / EuFMD]

Dr Keith Sumption and Dr Nick Lyons (EuFMD) reviewed the history of the PCP-FMD development, noting that the approach is evidence-based, which is essential for building confidence in the national strategy and its implementation. They also noted that the second international application of the tool had been presented in a "Pan-Africa" workshop hosted by AU-IBAR in Nairobi in 2009. This had highlighted the potential of the approach to assist African countries, and it was interesting to compare the prediction from experts on the anticipated progress in 2009 with that achieved in 2018. The tool has been refined between FAO, EuFMD and OIE with a 2nd edition of the PCP Guidelines agreed in 2018. The new version was applied in the current Roadmap meeting. Drs Sumption and Lyons highlighted how PCP stage 3 now prepares countries for the official endorsement by OIE of a national official control programme, which is now considered Stage 4. This development is to ensure that there is a clear stepwise development with each stage preparing the country for the management competence of the next. This change does not directly affect any country in the Eastern Africa Roadmap since no country was in Stage 3 or 4. The presentation concluded with a question and answer session on common issues and perceptions of the approach.

Implementation of the conclusions of the 2nd PCP roadmap meeting held in Kigali, Rwanda 2014

[Silvia Kreindel / FAO]

Dr Silvia Kreindel summarised the conclusions and recommendations of the 2nd FMD Progressive Control Pathway (PCP) Roadmap Meeting held in Kigali, Rwanda in October 2014, with representatives from 11 countries [1] and IGAD, AU-IBAR, AU-PANVAC, OIE, BVI, Merial and FAO. In 2014, countries agreed to consider recommendations including:

1. Building capacity for the implementation of quality control for FMD vaccines with AU-PANVAC supporting technical training and provisions for basic laboratory equipment;

^[1]Burundi, Democratic Republic of Congo, Djibouti, Eritrea, Kenya, Rwanda, Somalia, South Sudan, Sudan, Tanzania and Uganda.

2. Acknowledged ongoing efforts to facilitate coordination and harmonization of FMD related initiatives aimed at improving the mutual understanding between countries on TAD control issues; and
3. Make use of tools provided by the FMD GF-TADs to better monitor and evaluate the countries' PCP-FMD progress. It was also recommended that countries explore the possibility of establishing a second RSL which that can provide FMD specific support in the region.

Since data on the implementation of the 2014 conclusions was lacking, a survey will be distributed to countries in the region to evaluate the implementation of the priorities.

The Regional Advisory Group

[Djahne Montabord / OIE]

The Terms of Reference (ToRs) of the Regional Advisory Group (RAG) were presented by Dr Djahne Montabord (OIE). She clarified the modalities for the constitution of the group and the roles and responsibilities of its members in between and within the roadmap meetings. Roadmap Meeting. She highlighted the external support provided by non-voting members in the process of PCP stage validation after countries' self-assessment.

Participants were reminded the previous RAG was elected more than three years ago and therefore a new RAG was due for election.

The participant elected the voting members of the RAG for the Eastern Africa region as follows:

- CVO of Uganda: Dr Rose Ademum Okurut (Chair)
- CVO of Republic of Sudan: Dr Kamal Tagelsir El-shikh
- CVO of Kenya: Dr Obadiah Nyaga Njagi
- Leader of the Eastern Africa laboratory Network: Dr Daniel Gizaw (Ethiopia)
- Representative of the leader of the Eastern Africa Epidemiology network: Dr Noelina Nantima (Uganda)

Report from the Eastern Africa Regional Epidemiological Network (EAREN)

[Noelina Nantima / EAREN]

Dr Noelina Nantima (Uganda), representing Dr Emmanuel Swai (Tanzania), reminded the participants that the Eastern Africa Regional Epidemiology Network (EAREN) was established in 2010, following several outbreaks of Transboundary Animal Diseases (TADs) and zoonosis in the Eastern Africa region, impacting on the livelihoods of the people in the region. The EAREN is composed of focal points/epidemiologists from Burundi, Democratic Republic of Congo, Djibouti, Eritrea, Ethiopia, Kenya, Republic of South Sudan, Rwanda, Somalia, Sudan, Tanzania and Uganda. The EAREN provides technical advice to the Regional Animal Health Networks (RAHN)/CVOs on issues aimed at strengthening surveillance and prevention of animal diseases and zoonosis in collaboration with partners. The EAREN is anchored in the IGAD/ICPALD and East African Community (EAC) with technical and financial support from AU-IBAR and FAO-ECTAD. Since 2010, annual meetings have been held to discuss technical issues and achievements. During these

meetings, priority lists for the control of TADs and zoonosis have been developed. The meetings have also developed surveillance guidelines, memorandum of understanding (MOU) for the control of cross-border movement, discussed and agreed on Standard Methods and Procedures (SMP) to harmonise disease surveillance, diagnosis and control strategies, as well as harmonised coordination for the control of TADs. The Eastern Africa FMD sub-network was formed under the EAREN to complement activities of the member states towards fulfilment of the Progressive Control Pathway for FMD. The FMD sub-network has supported member countries through various specialised trainings and webinars among others aimed at fulfilling conditions and guidelines of the PCP. The EAREN is challenged by limited funding, human and physical resources, as well as cultural diversity and poor information sharing.

Report from the Eastern Africa Regional Laboratory Network (EARLN)

[Daniel Gizaw / EARLN]

Dr Daniel Gizaw explained how the Eastern Africa Regional Laboratory network (EARLN) benefits regional laboratories through encouraging collaborations, exchange of information and experiences related to FMD progressive control. However, weak points threatening the system include a lack of consistent information and knowledge sharing systems, turn-over of participants, designation of responsibility and a lack of funds to implement agreed action points. FMD is still endemic in all the countries in East Africa and plans for improving control measures are mostly at an early stage of implementation. The capacity to diagnose and characterise FMD varies widely in the region. The National FMD laboratories of the region do not have sufficient access to quality diagnostic kits and reagents or funds for sending samples to the FMD World Reference Laboratory (WRL-FMD) to understand strain circulating in each country.

The EARLN, in collaboration with IGAD and FAO, convened a meeting from 12-14 December, 2017 under the auspices of an OIE Reference Laboratory Twinning Project between the WRL-FMD and the National Animal Health and Diagnosis Laboratory (NAHDIC) at Sebeta, Ethiopia. The meeting was aimed at sharing information about the FMD situation in the region, reviewing FMD laboratory diagnostic capacity and training priorities in East Africa and to ensure having a sustainable Network platform for regional FMD laboratory activities. The meeting was attended by National Laboratory representatives from seven East African countries (Democratic Republic of Congo, Kenya, Sudan, Tanzania, Somalia, Uganda, Ethiopia), WRL-FMD, the Ethiopian Ministry of Livestock and Fisheries, EuFMD, the Ethiopian National Veterinary Institute (NVI), the Ethiopian Agricultural Transformation Agency (ATA) and the Pan African Veterinary Vaccine Centre (PANVAC).

The FMD sub-network of the East African Regional Laboratory needs to prioritize its activities over the next year. NAHDIC, through its OIE FMD twinning programme, will organize training for FMD laboratories in the East Africa region in either November or December, 2018.

Report from the OIE Reference Laboratories and circulating FMD serotypes and topotypes in Eastern Africa

[Mokganedi Mokopasetso / BVI - Donald King / WRL, Pirbright]

Dr Mokganedi Mokopasetso (Botswana) noted Botswana Vaccine Institute (BVI) has housed the OIE FMD Regional Reference Laboratory for Sub-Saharan Africa since 1985. As a member of the OIE/FAO FMD Reference Laboratories Network, its mandate is to provide timely confirmation of FMD outbreaks, conduct research on FMD viruses, contribute to global FMD surveillance and provide technical support (laboratory & field) to countries of sub-Saharan Africa. The laboratory receives samples mostly from southern Africa, whilst only a few are received from eastern Africa, therefore it is a need for these countries to enhance their sample submissions to the reference laboratories for characterisation. This will ensure that the overlap of FMD virus topotypes in pool 6 and 4 are clearly and adequately mapped out. Historical and recent nucleotide sequencing/vaccine matching data suggest that current available vaccine strains are still relevant. However, there is still need for more widespread sampling, isolation and characterisation of FMD viruses across the different FMD virus pools to facilitate development of future antigen banks. OIE Regional Reference laboratories must therefore continue to be closely integrated into development of regional PCP-FMD roadmaps to ensure provision of the required technical support.

Dr Donald King (WRL, Pirbright) highlighted that FMD is considered to have endemic status in countries across mainland East Africa, where viral serotypes O, A, SAT 1 and SAT 2 regularly cause outbreaks in domesticated species. Serotype SAT 3 is also present in buffalo populations with occasional spill-over into livestock reported, while serotype C has not been reported anywhere globally since 2004. The OIE/FAO FMD Reference Laboratory Network (including regional East African partners in Ethiopia and Kenya) collates laboratory and epidemiological data from the different FMD endemic pools to define the distribution of FMD viral lineages and to monitor changing patterns of risk. Dr King's presentation summarised this information and highlighted surveillance gaps that currently exist in East, Central and West Africa. Dr King reported that for serotype O, viral sequence data indicates that topotype O/EA-3 is present in countries in the northern part of East Africa (such as Ethiopia and Sudan) and that this lineage has spread from this region to affect countries in West Africa (Nigeria), North Africa (Egypt), and beyond (Israel and Palestine). A second topotype (O/EA-4) is also detected in Ethiopia. In contrast, countries in the southern part of the East Africa region maintain different serotype O topotypes, including O/EA-2, which has the widest distribution (Kenya, Uganda, Tanzania, Zambia), while O/EA-1 appears to be restricted to Kenya (last detected in 2009). This observed segregation between viruses found in the northern and southern parts of the East Africa region is mirrored for serotype A, SAT 1 and SAT 2 FMD viruses².

Taken together, these patterns of FMD virus distribution support the idea that there are two separate sub-regional pools of endemic virus circulation. This underlying epidemiological picture may influence the performance of vaccines in these different parts of the region and should be carefully considered when transporting clinical specimens between countries in East Africa to

² http://www.wrlfmd.org/fmd_genotyping/index.html

minimise the potential for the introduction of exotic FMDV strains. There are still important gaps in (i) the understanding of the way that FMDV lineages are maintained in the region, as well as (ii) robust evidence to demonstrate that vaccines confer protection against these different viral lineages. The OIE/FAO FMD Laboratory Network (<https://www.foot-and-mouth.org>) encourages countries to submit appropriate clinical samples for laboratory analyses and testing is free-of-charge. For further information or assistance with shipments, please contact donald.king@pirbright.ac.uk.

Benefits of FMD control on regional and international trade

[Gregorio Torres / OIE - Keith Sumption / EuFMD]

Drs Gregorio Torres (OIE) and Keith Sumption (EuFMD) reported that the OIE Terrestrial Animal Health (Terrestrial Code) sets out standards for safe international trade of terrestrial animals and their products. The scientific-based recommendations included in the Terrestrial Code should be used by the Veterinary Authorities in the control and prevention of FMD spread via international trade, while avoiding unjustified sanitary barriers to trade. The Terrestrial Code constitutes a reference within the World Trade Organization Agreement on the application of Sanitary and Phytosanitary Measures as an international standard for animal health and zoonoses.

The different trade options provided by the Terrestrial Code and how the PCP-FMD tool can support the process for overcoming the sanitary barriers and gain access to lucrative international markets were discussed. The risk-mitigation options included geographical (i.e. zoning) and non-geographical approaches (i.e. compartmentalisation or commodity-based trade).

The implementation of the PCP-FMD principles are intended to support countries in building confidence and evidence to support safe international trade. Even endemic countries in PCP Stages 1 to 4 could benefit from the trade enabling options in the Terrestrial Code.

The participant countries were invited to make use of the PCP-FMD principles as a tool to develop safe international trade in line with the Terrestrial Code and, if needed, to request further support from the GF-TADs FMD Working Group to ensure the correct implementation of the international standards.

Benefit of strengthened enabling environment on FMD control

[Samuel Wakhusama / OIE]

Dr Samuel Wakhusama (OIE-SRR Eastern Africa) illustrated the importance of a strengthened enabling environment for the control of FMD. He provided the rationale for the Global FMD Control Strategy and how the FAO and OIE developed a 15-year Global FMD control Strategy in 2012 under the GF-TADs. The presentation outlined how the OIE Performance of Veterinary Services (PVS) tool supports OIE member countries in identifying gaps for creating an enabling environment for FMD control through achieving 36 out of 47 critical competences (CC's). Dr Wakhusama emphasised the need for a firm political commitment of Governments, in order to establish good governance of Veterinary Services (VS), through application of a one line of command from central Government, with provision of the necessary funding at all levels of government (centralized or decentralized). He further illustrated the importance of support from

international and Public Private Partnerships (PPP) to help set priorities, policies and institutions on the right path (“an enabling environment”) for the delivery of VS. Finally, he provided a global selection of PPP success stories for FMD control and concluded by re-emphasizing that, an enabling environment is part of the FMD Global Control Strategy that ensures sustainability of efforts. The PVS should therefore be considered when supporting countries on PCP-FMD, as well as both public and private sectors.

Session 3/5. Assessment of Country’s FMD progressive control pathway status

During day 1 and day 2, the representatives of each country presented a report describing the FMD situation in their country, in accordance with a template provided before the meeting. Each country had a 15 minutes time slot, followed by a 5-minutes question-and-answer session. Summaries of the information presented by the countries, as well as the outcomes of their respective self-assessment questionnaires, are provided in Annexes 4 and 5.

Session 4. Transborder movement coordination

[Ameha Sebside Woldemariam / IGAD - David Balikowa / EAC]

Dr Ameha Sebside Woldemariam, (IGAD) and Dr David Balikowa (EAC) introduced the topic for the group discussion that was facilitated by Dr Keith Sumption (EuFMD).

Dr Woldemariam highlighted that one of the nine priority TADs in the region is FMD. He indicated that it was evident that effective FMD control requires a regional and coordinated approach. IGAD/ICPALD, in collaboration with AU-IBAR and the Member States (MS), facilitated the signature of cross border MOUs between bordering countries. He reported that the agreed key areas of collaboration in the MOU are: harmonized surveillance and vaccinations; timely disease reporting and information exchange including early warning; mapping of stock routes and natural resources; management of livestock movements; awareness creation on animal health issues among communities and livestock trade.

Ethiopian and Kenyan Ministers of Agriculture had already signed a cross-border MOU and IGAD was working with its Member States (MS) on the development of an implementation framework and governance structure to operationalize the pending MoUs. Some joint activities started on the strengthening of Peste des Petits Ruminants (PPR) and FMD vaccination strategies. The harmonized Standard Methods and Procedures (SMP) for FMD developed and validated with MS, will also be implemented jointly with IGAD.

Dr Woldemariam also reported that a multilateral MOU was developed for four countries (Kenya-Uganda-Ethiopia- South Sudan- the so called ‘Karamoja cluster’). No objection letters have been received from the countries and the Ministers responsible for livestock resources in the respective countries would be facilitated by IGAD to sign the MoU. The MOUs on other borders in the pipeline include Sudan–Ethiopia; Somalia–Djibouti; Ethiopia–Somalia; and South Sudan-Sudan.

Dr Balikowa (EAC) stressed that only half of the EAC members are part of IGAD. He noted the difficulty in the control of the transborder movements of livestock, due to the significant socio-

economic impact this may cause. He noted that there were significant informal and formal movements of people, animals and animal products across the EAC borders. Furthermore, there are some political and social conflicts in the region that lead to people to move with their livestock. Dr Balikowa also indicated the existence of some bilateral MoU signed under the auspicious of the EAC.

Discussions

The attendees of the meeting discussed some successful experiences, such as the model used for the eradication of rinderpest, that could be used to regulate cross-border movement to support FMD regional control. It was also highlighted that factors such as climate change, political instability, limited access to land, sociocultural aspects, as well as the different FMD virus strains circulating in the region, should be taken in consideration to better understand and effectively enforce cross-border movement regulation.

It was agreed that internal and cross-border livestock movement control should be a priority for the countries and that the Regional Economic Communities (RECs) should advocate at the highest political level for the need to enhance and enforce regional cross-border livestock movement protocols.

Session 6. Vaccine and PVM challenges

Group discussion on vaccine and PVM challenges

[Nick Lyons / EuFMD]

Dr Nick Lyons highlighted that post vaccination monitoring is an essential part of all stages of the PCP-FMD. In this session, two scenarios were presented, relevant to countries present at the meeting, with subsequent discussion among the attendees. The aim was to seek recommendations from the group on these two scenarios.

The first scenario considered recommendations for a stage 1 country, either not using vaccination, or not using vaccine in a risk-based strategy. Resulting discussion from the attendees of the meeting highlighted the following recommendations: 1) knowledge of the circulating serotypes and topotypes is critical for vaccine recommendations at national and regional levels; 2) there is a need to improve inter-country and regional communication on the presence of different viral serotypes; 3) countries should be “critical buyers” of vaccines and consider implementing their own small-scale immunogenicity studies to assess vaccine quality, as recommended by the FAO-OIE post vaccination monitoring (PVM) guidelines³; 4) countries should be aware of the advantages of NSP purification for differentiating infected from vaccinated animals and its relevance to endemic countries; and 5) countries should know the potential role of PANVAC in quality assurance, not to act as an enforcer of standards but as an optional independent evaluation that countries could insist upon, prior to importing vaccines.

³ <http://www.fao.org/3/a-i5975e.pdf>

The second scenario considered aspects of Monitoring and Evaluation (M&E) for countries developing (stage 1) or implementing (stage 2) their Risk Based Strategic Plan (RBSP). The following recommendations were discussed: 1) M&E, the distinction between the two, and setting targets relevant to strategic objectives are critical aspects of a RBSP; 2) population level immunity can be used to evaluate a vaccination programme; 3) post-outbreak investigations in the event of a vaccine failure are important to understand the severity of the failure and the reasons for poor performance.

For both scenarios, attendees were referred to the FAO-OIE PVM guidelines and the e-learning course offered by EuFMD, which has been completed by some members in the Eastern Africa region, but will be more widely available in late 2018/early 2019.

Session 7. Assessment of countries' FMD progressive control pathway status

The PCP-FMD Stages of the Eastern Africa countries were discussed in accordance with the acceptance process, taking into consideration the self-assessment done by the countries in fulfilling the check-list questionnaires prior to the meeting, the country report presented in plenary session and the bilateral interviews. The findings were then discussed within the RAG and presented for acceptance in plenary session.

Session 8. Endorsement of an updated PCP-FMD Regional Roadmap Eastern Africa

The participants agreed on the PCP Stages presented in the table here below:

Country	Validated Stages							Provisional Stages						
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Burundi	1	1	1	1	1	1	0	1	1	1	2	2	2	2
Comoros							1	1	1	1	4	4	4	4
Djibouti	1	1	1	1	1	2								
Eritrea	1	1	1	1	1	1	1	1	2	2	3	3	3	3
Ethiopia	1	1	1	1	1	1	1	1	1	1	2	2	2	2
Kenya	1	1	1	1	1	1	1	2	2	2	2	2	3	3
Rwanda	1	2	2	2	2	2	2	3	OIE					
Somalia	1	1	1	1	1	1	1	1	2	2	2	2	2	3
South Sudan	0	1	1*	1*	1*	1*	1	2	2	3	3	4	4	4
Sudan	1	2	2*	2*	2*	2*	2*	2	3	3	3	4	4	OIE
Uganda	1	1	1	1	2	2	2	2	2	3	3	4	4	OIE
Countries assessed by RAG SADC														
DRC	1	1	1	1	1	1*	1	1	1	2	2	2	3	3
Tanzania	1	1	1	1	1	2*	2	2	2	3	3	3	3	3

Provisional status given to the country (countries have 6 months to provide additional information as requested by RAG; if no, they will be considered in their previous validated stage)

Djibouti did not attend the meeting in Entebbe

0	1	2	3	4	OIE
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Table 1: PCP-FMD Roadmap of Eastern Africa countries as of July 2018

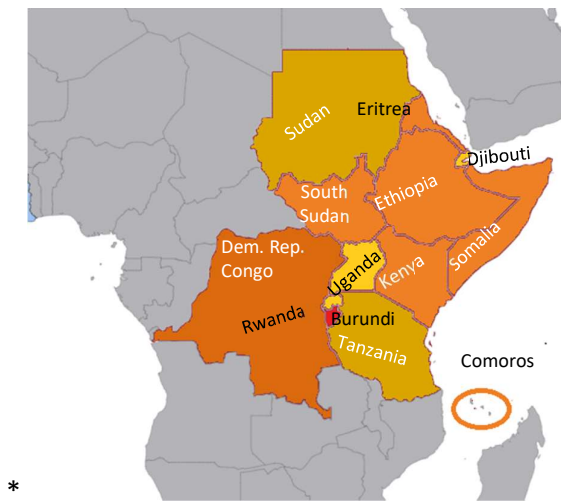


Figure 2. PCP-FMD Stages granted during the 2018 Entebbe meeting

Introduction of PCP support officers (PSOs)

Dr Nick Lyons gave a presentation on the PCP Support Officer (PSO) system, recently launched by EuFMD through the GF-TADs FMD Working Group.

The objective of the PSO system is to provide follow-up to individual, or a group of, countries between regional roadmap meetings, in such a way that countries are motivated to continue FMD control along the PCP-FMD. Priority is with countries assessed as being in a provisional stage by the Regional Advisory Group (RAG). This will involve liaising with the national FMD focal point and FMD task force to support and guide the veterinary authority to complete the PCP Stage and/or to progress FMD control along the PCP. EuFMD will assist with following up the recommendations given by the RAG at regional roadmap meetings or related to other feedback on the country's FMD control plan (i.e. the Risk Assessment Plan [RAP] or Risk-Based Strategic Plan [RBSP]). If deemed necessary and funds are available, country missions may be performed according to specific needs, in agreement with the FAO/OIE FMD-WG and regional or national offices.

Initially, PSOs are being sourced by a pool of consultants from EuFMD, who are experts in the PCP, demonstrated by: 1) experience in advising countries on developing risk-based strategies using the PCP principles; 2) experience in working with national veterinary services and; 3) technical backgrounds in FMD, for example in epidemiology or diagnostics. There are plans to develop capacity within the regions, so that the support can be delivered from the region with continued guidance from technical experts at EuFMD. A training approach is currently under development.

The response from the meeting on this system was positive. The capacity building component was emphasised, and it was requested to expand the support to countries not officially in provisional stages, if requested. However, as the financial support from EuFMD for this initiative is limited, further funds would need to be sourced from elsewhere to expand the system.

Annex 1 - Recommendations

Recommendations of the Third Regional FMD Roadmap Meeting: Eastern Africa

Considering

- the adoption of the FAO-OIE Global Strategy for the control of FMD (Bangkok, June 2012) with its three inter-related components: control of FMD, reinforcement of Veterinary Services and combined control of FMD with the control of other animal diseases;
- the importance of regional coordination for the effective control of FMD;
- the importance of having a Regional Advisory Group (RAG) for Eastern Africa to review the assessments of countries along the progressive control pathway for FMD (PCP-FMD) and to support the implementation of the national strategies by performing activities as described in its Terms of Reference, such as guiding FMD training and capacity development activities and advocating at regional level with countries, the private sector and donors on the importance of investing in FMD control and prevention;
- inadequate finance in all member states (MS) is one of the key limitations to the implementation of the FMD PCP;
- the existence of the Eastern Africa Laboratory Network, the Eastern Africa Epidemiology Network and their respective FMD sub-networks to support the regional and national FMD control effort;
- the on-going efforts made by IGAD ⁴ in facilitation of cross border MOU development and implementation framework to undertake joint disease surveillance, control and reporting were acknowledged as being a useful tool that all stakeholders can subscribe to coordinated TADs control in the region;
- the challenges faced in the region in the use of vaccines that will provide effective protection to vaccinated animals; and
- the recommendations for safe international trade provided in the OIE Terrestrial Animal Health Code chapter on FMD.

⁴ IGAD : Intergovernmental Authority on Development

The twelve participating countries: Burundi, Comoros, Democratic Republic of Congo, Eritrea, Ethiopia, Kenya, Rwanda (video-conference), Somalia, South Sudan, Sudan, Tanzania and Uganda agree:

- to elect the CVOs of governments of the Republic of Uganda, Sudan and Kenya as voting members of the RAG for the Eastern Africa region for a 3-year term, starting in July 2018;
- to appoint the CVO of the Republic of Uganda as the Chair of the RAG;
- to appoint the leaders of the Eastern Africa Epidemiology and Eastern Africa Laboratory networks, as voting Members of the RAG;
- to include, whenever appropriate, existing PCP-FMD and PVS experts, RECs⁵, AU-IBAR⁶, AU-PANVAC⁷, GF-TADs FMD Working Group and representatives from the OIE and FAO Sub-regional representations for Eastern Africa, as non-voting members of the RAG;
- to use the assessments of this Regional FMD Roadmap Meeting (Entebbe, 2018) as a basis for establishing the provisional 2018-2025 Roadmap for the Eastern Africa countries; and
- to request AU-IBAR in coordination with IGAD and EAC⁸ to develop a Regional FMD Control strategy with a common vision for the Eastern Africa region.

The participating countries made the following recommendations for better implementation of the Global FMD Control Strategy in the Eastern Africa:

- **The countries**
1. to be encouraged, supported and committed to reach at least Stage 2 of the PCP-FMD by 2020, with the support of AU-IBAR, IGAD and EAC following the guidelines and principles of the PCP-FMD and the OIE PVS tool⁹; in doing so, to regularly share the necessary material and/or information on FMD virus circulation (as per 2013 OIE 81 General Session Resolution # 15 : “Sharing of Foot and Mouth Disease material and information in support of global Foot and Mouth Disease prevention and control”¹⁰), that could assist the entire region in decisions on risk mitigation and, consequently, progress along the FMD Roadmap for the region;
 2. to regularly monitor and evaluate the implementation of their national FMD control strategies, in alignment with the Global FMD control strategy and PCP-FMD principles;

⁵ RECs: Regional Economic Communities

⁶ AU-IBAR: African Union - International Bureau for Animal Resources

⁷ AU-PANVAC: Pan African Veterinary Vaccine Center of African Union

⁸ EAC: East African Community

⁹ OIE PVS tool: OIE tool for the Evaluation of Performance of Veterinary Services

¹⁰ http://www.oie.int/fileadmin/Home/eng/About_us/docs/pdf/A_RESO_2013_public.pdf

3. to support and strengthen the Eastern Africa Epidemiology and Laboratory networks to share good practises, lessons learnt and build capacity in the countries, in order to allow application of the PCP-FMD principles; priority support should be given to countries in PCP-FMD Stage 1 and Stage 2, where a range of technical areas should be strengthened;
4. to liaise with AU-IBAR, IGAD, EAC in collaboration with FAO, OIE and other partners mobilize resources at regional and national levels for effective FMD control in the Member States;
5. to increase the rates of FMD virus characterisation across the region with the support of FAO/OIE Reference Laboratories, and to regularly share the results among the region;
6. to use the information to ensure that the vaccine selection and vaccine registration processes are shared along with the current risks and the FMD virus serotypes and topotypes circulating in the region;
7. to consider implementing their own national small-scale immunogenicity studies to assess vaccine quality as recommended by the FAO-OIE Post-Vaccination Monitoring Guidelines;
8. to conduct post-outbreak investigations in the event of vaccine failure to understand the severity of the failure and the reasons for poor vaccine performance;
9. to consider the OIE international standards as the base to facilitate safe international trade of FMD susceptible animals and their products, in particular for commodities from FMD infected countries;
10. to explore the feasibility of implementing the regionalization principles (i.e. zoning and compartmentalisation) as a trade facilitating tool, as well as effective FMD control management strategies;
11. to appoint and empower national PCP-FMD, epidemiology and laboratory point of contacts;
12. to make use of PCP Support Officers (PSO), when assigned by FAO/OIE/EuFMD, to assist their progress on the PCP-FMD and to identify and train regional experts to become PSO;
13. to prioritise internal and cross-border livestock movement controls.

➤ **The supporting organisations**

14. to encourage member countries, to use AU-PANVAC for quality assurance prior to purchasing vaccines in line with the AU-IBAR decision;
15. to promote new or extended registration of FMD vaccines, through the mutual recognition process recently adopted by the EAC, in order to provide a greater availability of quality FMD vaccines that fulfil the OIE terrestrial Manual standards (Chapter 2.1.8. on FMD);
16. RECs (IGAD and EAC) to advocate at the highest political level for the need to enhance and enforce regional cross-border livestock movement protocols;
17. RECs to provide support to the member states in the preparation, signing and implementation of MoUs¹¹ for the joint and coordinated cross-border movement and TADs control;
18. The GF-TADs FMD Working Group and EuFMD to provide templates and training on the PCP-FMD and on the development of risk assessment plans, risk-based strategic plans as well as support for the development and implementation of social economic studies in order to build a critical mass of technical personnel to sustainably support the PCP-FMD process;
19. The OIE, in collaboration with relevant regional and global partners and the OIE/FAO reference laboratories, to continue committing appropriate resources and organising training programmes to improve laboratory diagnostic and epidemiological capacities and undertake follow-up PVS evaluations;

All participants THANK the Government of Uganda and the Government of Italy for collaborating with FAO, OIE and EuFMD under the GF-TADs programme to successfully convene the 3rd GF-TADs Regional PCP-FMD Roadmap Meeting for Eastern Africa.

¹¹ MoU : Memorandum of understanding

Annex 2 - Agenda



3rd Regional Roadmap Meeting on PCP-FMD
Eastern Africa
Entebbe, 3-5 July 2018

Tuesday, 3 July 2018

Tuesday, 3 July 2018		
08.00 - 09.00	Registration	
1. Opening and general introductions		
09.00 - 09.30	Opening session <ul style="list-style-type: none"> • Introductions and climate setting by the Master of Ceremony, Dr Gerald Nizeyama (FAO) • Address by the OIE Delegate of Uganda, Dr Ademun Rose Okurut • Address by the Ag FAO Representative of Uganda, Ms Priya Gujadhur • Address by the OIE Sub-Regional Representative, Dr Samuel Wakhusama • Address by the Representing Director of AU-IBAR, Dr Henry Wamwayi • Address by the Ambassador of Italy, Kampala, H.E Amb Domenico Fornara • Opening address by the Minister of Agriculture, Animal Industries and Fisheries, Hon Ssempijja Bamulangaki 	
09.30 - 10.00	Group photo and morning tea break	
2. Progress along the Progressive control pathway for FMD in the region		
Dr Noelina Nantima, Uganda, chair		
	Objectives of the meeting	FAO
10.00 - 10.30	How well do you know the Global FMD Progressive Control Pathway? (quiz following the preparatory webinar on the 2 nd version of the PCP provided in June 2018)	EuFMD
10.30 - 11.00	Implementation of the conclusion of the 2nd PCP roadmap meeting held in Kigali, Rwanda in 2014. Discussions, including on the Reg. Advisory Group	FAO All (RAG)
11.00 - 11.15	Report from Eastern Africa Regional Epidemiological Network (EAREN)	Dr Neolina Nantima EAREN

11.15 - 11.30	Report from Eastern Africa Regional Laboratory Network (EARLN).	Dr Daniel Gizaw, EARLN
11.30 - 11.50	Report from the OIE Reference Laboratories and circulating FMD serotypes and topotypes in Eastern Africa	Dr Mokganedi Mokopasetso, BVI Dr Don King, WRL
11.50 - 12.10	Benefit of FMD control on regional and international trade	Gregorio Torres (OIE) & Keith Sumption (EuFMD)
12.10 - 12.30	Benefit of a strengthened enabling environment on FMD control - Delivery of animal health services under decentralized management of animal health; examples of the central role in relation to decentralized, for control of major diseases. - Performance of Veterinary Services: the PVS tool to support the FMD Strategy - Stakeholders involvement	Dr Samuel Wakhusama, OIE SRR Eastern Africa
12.30 - 13.30	Lunch break	
3. Assessment of country's FMD progressive control pathway status		RAG Member, chair
13.30 - 13.40	Election of the RAG (if needed)	
13.40 - 15.10	Country Reports (15 min each and 15 min for Q&A) 1. Sudan 2. South Sudan 3. Eritrea 4. Ethiopia	
4. Transborder movement coordination		Dr Ameha Sebsibe Woilemariam, IGAD (ICPALD), chair
15.10 - 16.00	Group discussion on transborder movement coordination	All
16.00 - 16.30	Afternoon tea break	
16.30 - 17.00	Presentation of the groups' conclusions on transborder movement coordination	All
17.00 - 17.10	Debrief of the day	Dr Thomas Dulu, OIE SRR-EA
17.10 - 18.10	Closed session: interviews with countries to discuss FMD situation and activities - 30 min per country – two panels for interviews 1. Sudan 2. South Sudan 3. Eritrea 4. Djibouti	
18.30	Welcome reception (OIE)	
Wednesday, 4 July 2018		
08.30 - 09.00	Closed session with the RAG to assess countries' PCP stage	

09.00 - 09.05	Preview of Day 2	All
5. Assessment of country's FMD progressive control pathway status Dr Neolina Nantima, RAG chair (Uganda)		
09.05 - 10.35	Country Reports (cont'd) (15 min each and 15 min for Q&A) 6. Somalia 7. Kenya 8. Rwanda 9. DR Congo 10. Uganda	
10.35 - 11.00	Tea break	
6. Vaccine and PVM challenges Dr Keith Sumption, EuFMD, chair		
11.00 - 12.00	Group discussion on vaccine and PVM challenges	Dr Keith Sumption and Nick Lyons (EuFMD)
12.00 - 12.30	Presentation of the groups' conclusions on vaccine and PVM challenges	All
12.30 - 13.30	Lunch break	
7. Assessment of country's FMD progressive control pathway status Dr Obadiah N Njagi, CVO Kenya, RAG Member, chair		
13.30 - 14.30	Country Reports (cont'd) (15 min each and 15 min for Q&A) 11. Comoros 12. Burundi 13. Tanzania	All
14.30 - 16.00	Closed session: interviews with countries to discuss FMD situation and activities - 30 min per country - two panels for interviews 5. Ethiopia 6. Somalia 7. Kenya 8. Rwanda 9. DR Congo 10. Uganda	
16.00 - 16.30	Tea break	
16.30 - 17.20	11. Comoros 12. Burundi 13. Tanzania	
17.20 - 17.30	Debrief of the day	Dr Thomas Dulu, OIE SRR-EA
17:30	Social event (Host)	
Thursday, 5 July 2018		
08.00 - 09.00	Closed session with the RAG to assess countries' PCP stage	
09.00 - 09.05	Preview of Day 3	All

8. Endorsement of an updated PCP-FMD Regional Roadmap Eastern Africa Dr Henry Wamwayi, Representing Director, AU - IBAR , chair		
09.05 - 10.00	Plenary updated FMD - PCP Roadmap Eastern Africa	Dr Neolina Nantima (Chair of the RAG)
10.00 - 10.15	Introduction of PCP support officers (PSOs)	Dr Nick Lyons (EuFMD)
10.15 - 11.15	Discussion and debriefing Regional priorities and recommendations	Dr Thomas Dulu, OIE SRR-EA
11.15 - 11.45	Tea break	
11.45 - 12.45	Closing remarks <ul style="list-style-type: none"> • FAO representative AGAH, Rome • OIE Paris • EuFMD • AU-IBAR • OIE SRR Eastern Africa • Republic of Uganda 	Dr Silvia Kreidel Dr Gregorio Torres Dr Keith Sumption Dr Henry Wamwayi Dr Samuel Wakhusama Dr Noelina Nantima
12.45 - 13.45	Lunch break	
13.45 - 14.30	End of the meeting and departure of participants	

Day 1 – 3 July 2018

- Country interviews (close session Day 1)

	Panel 1	Panel 2
1.	Sudan	South Sudan
2.	Eritrea	Ethiopia

Day 2 - 4 July 2018

- Country interviews (close session Day 2)

	Panel 1	Panel 2
3.	Somalia	Burundi
4.	Uganda	Comoros
5.	Kenya	Tanzania
6.		DR Congo

Interview panelists:

Panel 1: Keith Sumption, Gregorio Torres, Don King

Panel 2: Nick Lyons, Djahne Montabord, Silvia Kreindel

Annex 3 – List of participants

Country/Organization	Short Title	First name	Last Name	Title
1. Botswana /Botswana Vaccine Institute	Dr	Mokganedi	Mokopasetso	Chief Veterinary Officer - BVI
2. Burundi /Direction Générale de l'Elevage.Ministère de l'Environnement, de l'Environnement, de l' Agriculture et de l' Elevage	Dr	Déogratias	Nsanganiyumwami	Directeur de la Santé Animale/ <i>OIE Delegate</i>
3. Comoros /Direction Nationale de l' Elevage, Ministère de l'Agriculture	Dr	Youssouf Oussen	Moutroifi	Responsable de la Sante Animale/ <i>OIE Delegate</i>
4. Comoros /Direction de l'Elevage, Ministère de l'Agriculture	Dr	Onzade	Charafouddine	Directeur National de l'Elevage, <i>National focal point FMD</i>
5. Democratic Republic of the Congo / Ministère de Pêche et Elevage	Dr	Kabambi Ngabu	Prosper	<i>OIE Delegate (Representing)</i>
6. Democratic Republic of the Congo / Laboratoire Vétérinaire de Goma	Dr	Ezechiel	Bushu Mulinda	Administrateur de Laboratoire/ <i>National focal point FMD</i>
7. Egypt / ME-VAC Vaccine Producer	Dr	Leonida	Dudnikov	R&D Manager: Research & Development of FMD
8. Eritrea / Ministry of Agriculture	Mr	Seltene Berhe	Yehidego	Unit Head Animal Resources/ <i>OIE Delegate Representative</i>
9. Ethiopia / National Animal Health Diagnostic and Investigation Centre	Dr	Daniel	Gizaw	<i>Director, Regional veterinary network (lab)</i>
10. Ethiopia / Pan-African Veterinary Vaccines Centre (PANVAC)- AU	Dr	Ethel	Chitungo	Head of Quality Control Lab/ <i>FAO / OIE Reference Centre / Laboratory</i>

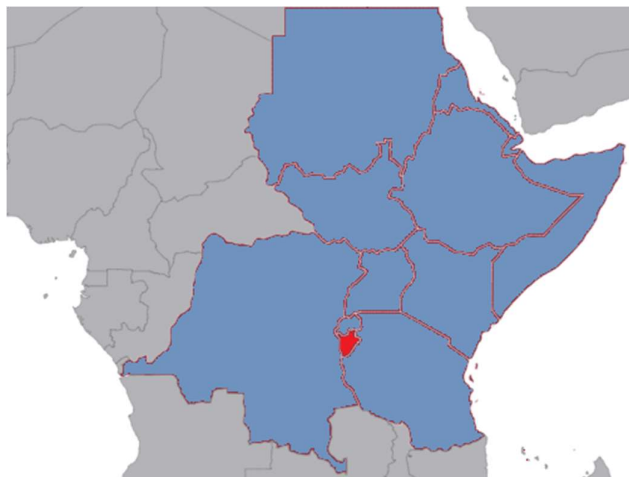
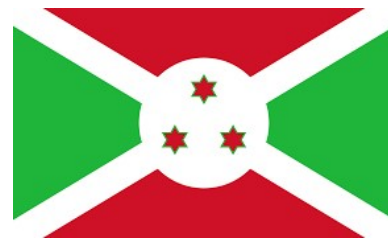
11. Ethiopia/ Ministry of Agriculture and Livestock Resources	Dr	Anbessie Alemayehu	Mekonnen	Director Disease Preventiuon and Control/ <i>OIE Delegate Representative</i>
12. France/ Merial/Boehringer Ingeheim, Vaccine Producer	Dr	Stephane Loius	Imbert	Regional Director, VPH
13. France/ Merial/Boehringer Ingeheim - <i>Vaccine producer</i>	Dr	Nicolas Marie Bruno	Denormandie	Director Technical Service/Middle East-Africa-Latin America Support, Director Technical Service/Middle East-Africa-Latin America Support, VPH
14. France/ World Organisation for Animal Health (OIE)	Dr	Gregorio	Torres	Charge de mission, Science and New Technologies Department - <i>OIE staff</i>
15. Italy/ Food and Agriculture Organisation of the United Nations (FAO), Rome	Dr	Silvia	Kreidel	Risk analyst FAO/ AGAH, AGA Division – FAO staff
16. Italy/ European Commission for the control of Foot-and-Mouth disease (EuFMD), FAO Rome	Dr	Keith	Sumption	Executive Secretary – EuFMD
17. Italy/ European Commission for the control of Foot-and-Mouth disease (EuFMD), FAO Rome	Dr	Nick	Lyons	Consultant – EuFMD, AGAH, FAO
18. Italy/ European Commission for the control of Foot-and-Mouth disease (EuFMD), FAO Rome	Dr	Jean Claude	Udahemuka	Animal Health Officer - EuFMD STP Pillar III AGAH, FAO
19. Italy/ AGAH, EuFMD/ FAO Rome	Ms	Nadia	Rumich	EuFMD Communication Officer
20. Kazakhstan/ OIE Sub-Regional Representation for Central Asia	Dr	Djahne	Montabord	Programme Officer, OIE Sub-Regional Representation for Central Asia
21. Kenya/ IGAD Centre for Pastoral Areas Livestock Development (ICPALD)	Dr	Ameha Sebsibe	Woldemariam	Head Livestock, ICPALD, IGAD Regional Economic Community

22. Kenya/ African Union – Interafrican Bureau for Animal Resources	Dr	Henry	Wamwayi	Coordinator RAHS Project, Animal Health Unit, AU-IBAR
23. Kenya/ State Department for Livestock, Ministry of Agriculture and Irrigation	Dr	Obadiah Nyaga	Njagi	Director of Veterinary Services/ OIE Delegate
24. Kenya/ State Department for Livestock, Ministry of Agriculture and Irrigation	Dr	George Njoroge	Njogu	Veterinary Epidemiologist, <i>National focal point FMD</i>
25. Kenya/ OIE Sub-Regional Representation for Eastern Africa	Dr	Thomas Daido	Dulu	Programme Officer, OIE Sub-Regional Representation for Eastern Africa
26. Kenya/ OIE Sub-Regional Representation for Eastern Africa	Dr	Samuel Wanyangu	Wakhusama	Representative, OIE Sub-Regional Representation for Eastern Africa
27. Kenya/ OIE Sub-Regional Representation for Eastern Africa	Mrs	Grace	Omwega	Administrative and Financial Assistant, OIE Sub-Regional Representation for Eastern Africa
28. Somalia/ Ministry of Livestock, Forestry and Range	Dr	Farah Mohamed	Ali	Director of Animal Health/ Chief Veterinary Officer/ OIE Delegate
29. South Sudan/ Ministry of Livestock & Fisheries	Dr	Jacob	Korok	Director General Veterinary Services, OIE Delegate
30. South Sudan/ Ministry of Livestock & Fisheries	Dr	Alor Kwaje	Koul	Director of Epidemiology & Disease Information System, Epidemiology/ <i>National focal point FMD</i>
31. Sudan/ Ministry of Animal Resources	Dr	Hanan	Yousif	Director, Disease Control Department, National Focal point FMD
32. Sudan/ Ministry of Animal Resources	Dr	Kamal	Tagelsir El-sheikh	Under-Secretary/Chief Veterinary Officer, OIE Delegate
33. Tanzania/ Ministry of Livestock and Fisheries	Dr	Michael Japhet	Madege	Veterinary Officer, National Focal point FMD Representing OIE Delegate
34. Tanzania/ East Africa Community	Dr	David	Balikowa	Senior Livestock Officer, Department of Agriculture EAC, Regional Economic Community

35. Uganda/ Food and Agriculture Organisation of the United Nations (FAO) – ECTAD	Dr	Gerald	Nizeyimana	Livestock Specialist (Animal Health), FAO-ECTAD, Uganda
36. Uganda/ Ministry of Agriculture, Animal Industries and Fisheries (MAAIF)	Dr	Stella Acaye	Atim	Senior Veterinary Officer, Animal Health Host Country Representative
37. Uganda/ Ministry of Agriculture, Animal Industries and Fisheries (MAAIF)	Dr	Ademun Rose	Okurut	Acting Commissioner of Animal Health, Representing OIE Delegate
38. Uganda/ Ministry of Agriculture, Animal Industries and Fisheries (MAAIF)	Dr	Noelina	Nantima	Assistant Commissioner Animal Health, Eastern African Regional Epidemiology Network
39. Uganda/ Ministry of Agriculture, Animal Industries and Fisheries (MAAIF)	Dr	Kenneth	Mugabi	Senior Veterinary Officer, Animal Health, Animal Disease Control, Host Country Representative
40. Uganda/ Ministry of Agriculture, Animal Industries and Fisheries (MAAIF)	Dr	Robert	Mwebe	Senior Veterinary Officer, Animal Health, Host Country Representative
41. Uganda/ National Drug Authority	Dr	Jeanne Bukeka	Muhindo	Ag Head Veterinary Products, Animal Health/Animal Disease Control
42. United Kingdom/ WRLFMD (FAO/OIE), The Pirbright Institute	Dr	Don	King	Head of the World Reference Laboratory for FMD, FAO/OIE Reference Centre/Laboratory
43. United States of America/ Deloitte Consulting LLP	Ms	Samantha	Mignotte	Consultant, Consultant Ag Results
44. United States of America/ Deloitte Consulting LLP	Ms	Parasto	Hamed	Consultant, Consultant Ag Results

Annex 4 - Summary of country reports

Republic of Burundi



PCP-FMD Stage

2014 1

2018 0

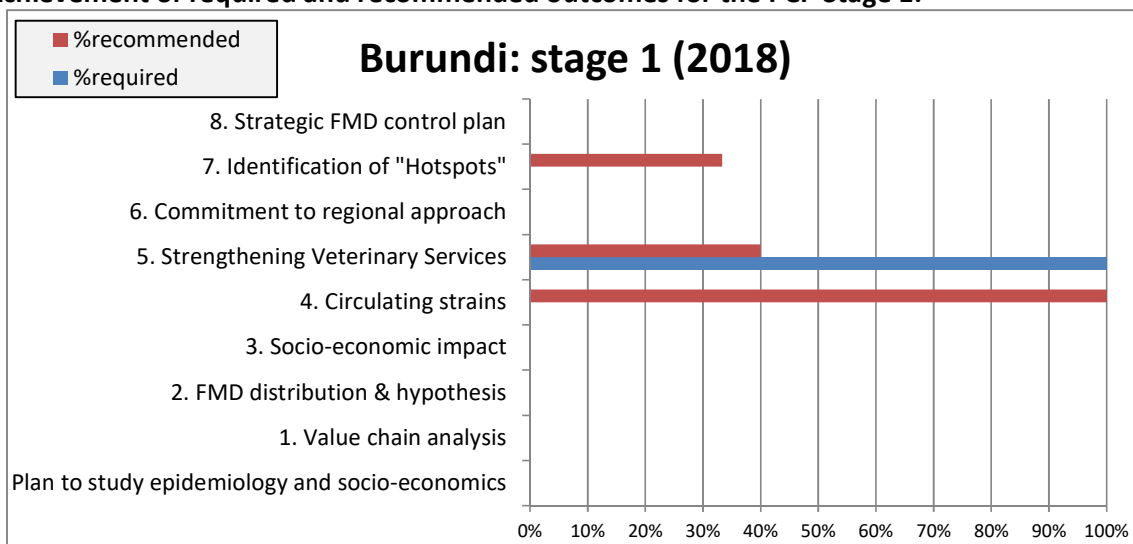
OIE PVS evaluation

PVS 2007 Gap 2012

Provisional Roadmap 2018

Country	Validated Stages					Provisional Stages (not validated)						
	2012	2013	2014	2015 to 2017	2018	2019	2020	2021	2022	2023	2024	2025
Burundi	1				0	1	1	1	2	2	2	2

Achievement of required and recommended outcomes for the PCP Stage 1:



FMD outbreaks & surveillance:

- FMD endemic in the country since 2015
- Vaccines using serotypes A, O, SAT1, SAT2

FMD Control Measures:

- Risk hotspots identified at 6 entry points, where transit centres are under construction to reinforce animal control at border inspection posts
- Annual vaccination (not regularly done)

Other notes and priorities for the future:

- PVS mission 09/2007 - Gap analysis 03/2012 - PVS follow-up mission requested to be conducted in 2018-2019
- Animals (cattle, goats and pigs) imported from Uganda (for slaughter) and Tanzania (breeding)
- 3 quarantine facilities built and operational upon the 6 planned (on border inspection posts)
- Reinforcement of National Veterinary Laboratory, with BADEA and through collaboration with CODACERVA laboratory in Belgium for serotyping (twinning project planned)
- Other TADs of importance (FMD, LSD, ASF, PPR, CBPP, Newcastle) but no synergic actions driven
- Last PPR outbreak in ???, leading to a development of small ruminants control and, therefore, increase of awareness at political level

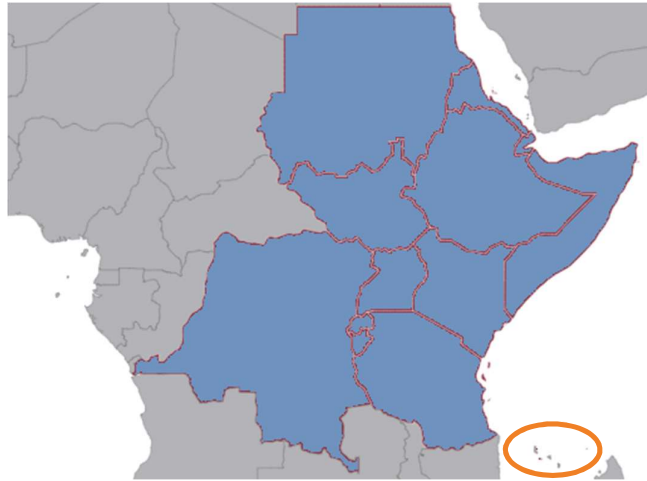
National gaps:

- No serotyping
- Vet services able to improve animal diseases control but not enough vets (10/17 provinces without vets: vets drain to other countries (better income))
- Laboratory equipment sufficient but lack of lack of reagents
- Lack of funding for vaccines purchase

Needs for support

- Need for improvement of technical abilities of field vets in animal diagnostic, epidemiology and import inspection

The Comores



PCP-FMD Stage

2014 -

2018 **1**

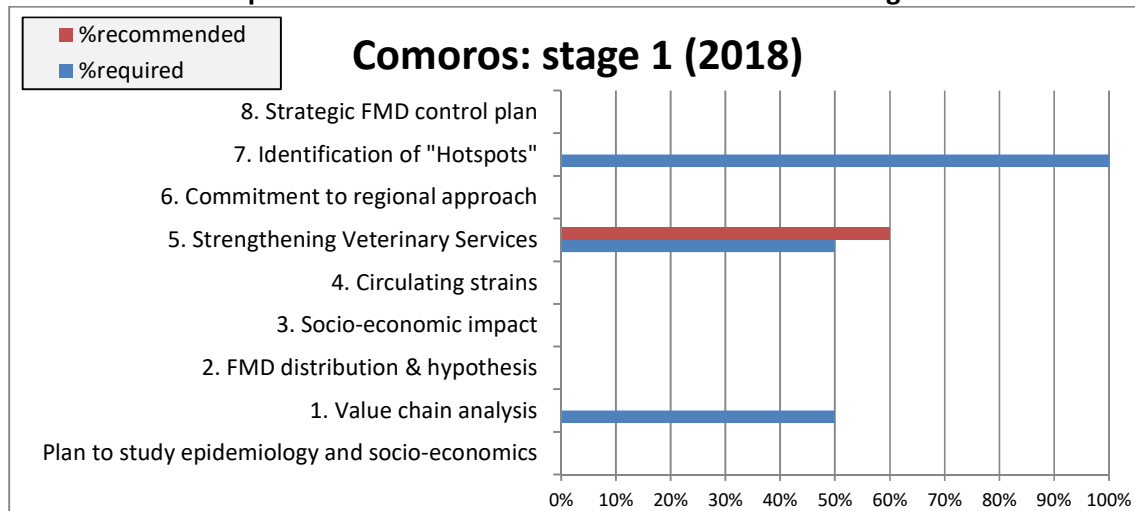
OIE PVS evaluation

PVS 2011
Gap 2016

Provisional Roadmap 2018

Country	Validated Stages					Provisional Stages (not validated)							
	2012	2013	2014	2015 to 2017	2018	2019	2020	2021	2022	2023	2024	2025	
Comoros	-	-	-	-	1	1	1	1	4	4	4	4	

Achievement of required and recommended outcomes for the PCP Stage 1:



FMD outbreaks & surveillance:

- No outbreak reported so far
- No specific studies on the FMDV circulation in the country
- Passive surveillance through field agents via smartphone application, based on a case definition for the diseases under surveillance : edit epidemiological bulletins
- Active surveillance: sample collection in case of suspicion
- 2014-2016: Outbreaks of anthrax, PPR, RVF

FMD Control Measures:

- No FMD vaccination
- Serology unit in the veterinary laboratory
- No FMD analysis available in the country : rely on other countries' laboratories

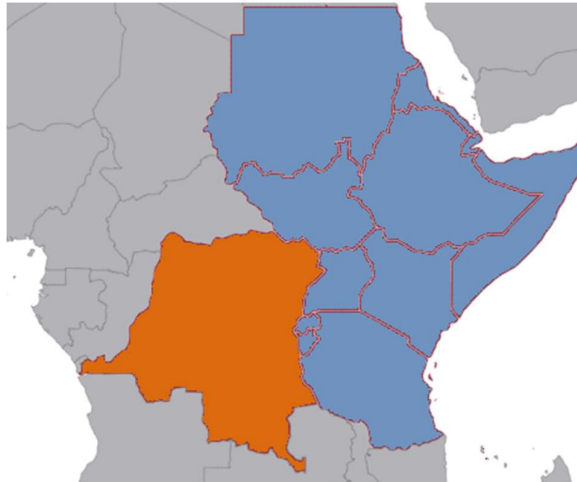
Other notes and priorities for the future:

- 3 islands: Ngazidja (Grande Comore), Ndzuani and Mwali
- Other diseases: Rift Valley Fever, Q fever, PPR, Anthrax, Avian influenza, Tick vector diseases (Theileriose, Babesiosis, Anaplasmosis)
- Animal movements between islands and with Madagascar and Tanzania: main threat for FMDV introduction (live animal importations), more specifically Ngazidja island (hotspot identified)
- Training of vaccinating agents
- Collaboration with other partners (COI, UA-IBAR, CIRAD)
- Research collaboration ongoing with INRAPE and CIRAD, to launch risk analysis on FMDV introduction in Comoros (to start in September 2018)
- Comoros plans to reinforce veterinary legislation to control emerging TADs, engage in an active sero surveillance on imported animals and improve passive surveillance
- Will for improvement of the regional collaboration with region on animal diseases and laboratory

National gaps:

- Insufficient resources (human (veterinarians and para-veterinarians), laboratory diagnostic capacities and quality assurance)
- Socio-cultural issues and socio-economic impacts of diseases
- Surveillance network and national strategy for animal disease control and prevention
- Other TADs control - Border control
- No FMD control plan
- No national strategy to fight and prevent from introduction of FMD

Democratic Republic of Congo



PCP-FMD Stage

2014 1

2017 **1***

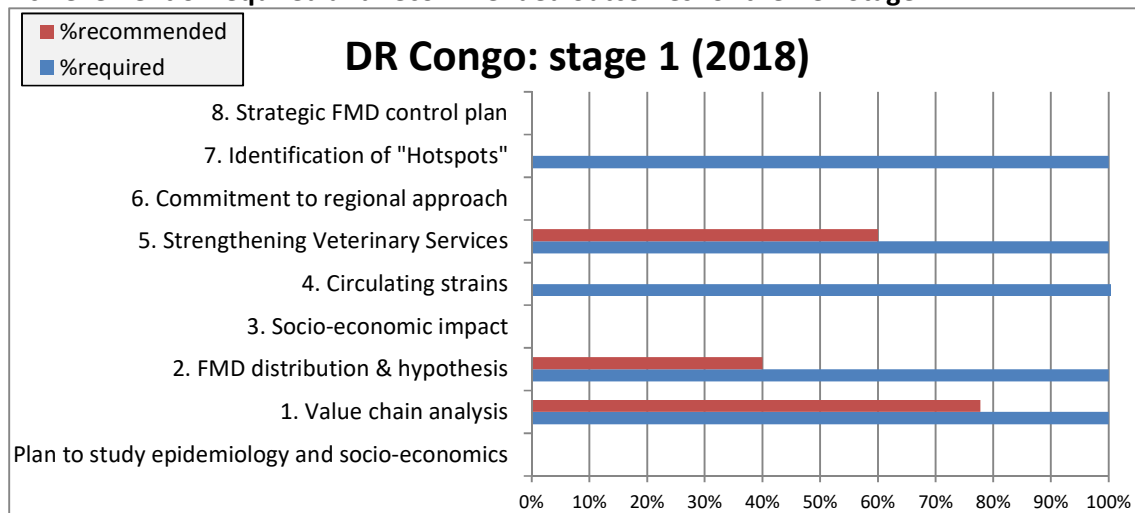
OIE PVS evaluation

PVS 2007
Gap 2011

Provisional Roadmap 2018

Country	Validated Stages			Provisional Stages (not validated)							
	2011	2012 to 2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Dem. Rep. Congo	1	-	1*	1	1	1	2	2	2	3	3

Achievement of required and recommended outcomes for the PCP Stage 1:



FMD outbreaks & surveillance:

- FMD endemic in the 5 provinces on the East borders of the country
- Outbreaks mainly on cattle (no notification on small ruminants or pigs) : SAT1, SAT2, SAT3, O, and A although no recent serotyping results
- Passive surveillance, with precise case definition for veterinary services on the field. 24 investigated but no test result yet
- Good participation of VS and resource people, trained on FMD monitoring and collection, packaging, transportation, storage and shipment of sample

FMD Control Measures:

- Laboratory in Goma : reduced activities on FMD (samples sent for serotyping to reference laboratories in Pirbright and Onderstepoort)
- Vaccination campaigns in 2012 and 2013
- Isolation, slaughter, movement control, quarantines in case of FMD
- FMD-CBPP mix vaccine considered

Other notes and priorities for the future:

- Follow-up PVS requested
- Some points not accessible in the country, due to insecurity
- Susceptible animals in the all country but cattle concentrated in the North of the territory
- Socio-economic survey planned but not conducted. A home survey is planned by vet services
- Risk hotspots identified : long border with 9 countries (porous borders), as for long cattle movements and transhumance
- Live animal import forbidden from Burundi, Tanzania and Rwanda
- Other TADs : CBPP, Rabies, PPR : PPR network to be used for FMD control
- Development of standard procedure manuals for priority diseases for training of field staff, together with sensitisation campaigns
- Stage 2 planned in 2021

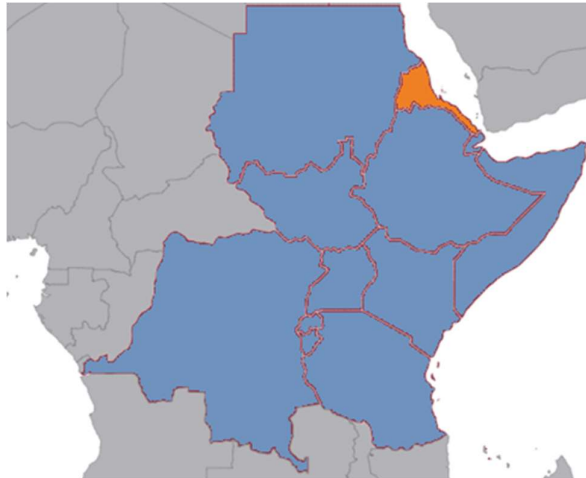
National gaps:

- Border control regulation in place but its implementation not always easy
- No compensation...
- No contingency plan, no RBSP, insufficient financial resources
- No update of circulating serotypes

Needs for support

- Reinforce the national strategy, data management and communication and lab capacity in Goma
- Implementing surveillance, finalizing the socio-economic impact study and management of new sero-survey studies,

Republic of Eritrea



PCP-FMD Stage

2014

2018

1

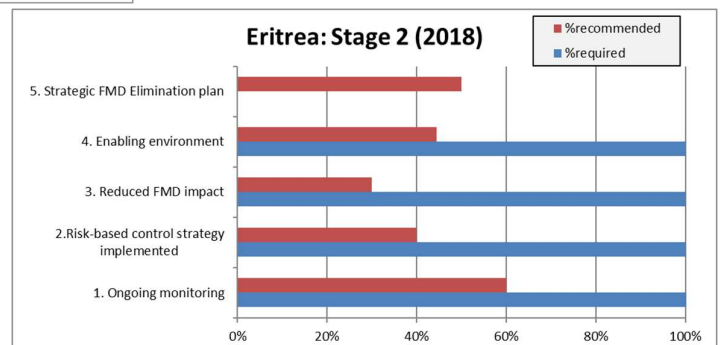
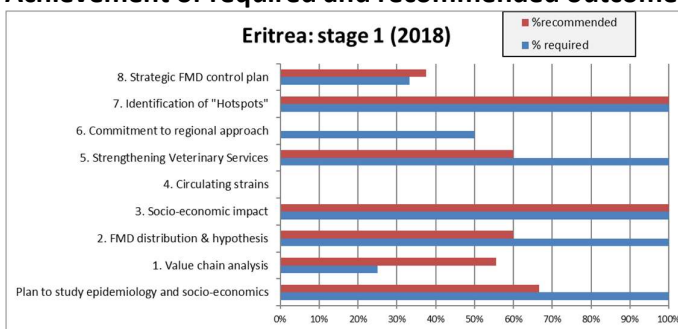
OIE PVS evaluation

PVS 2009
Gap 2011

Provisional Roadmap 2018

Country	Validated Stages					Provisional Stages (not validated)						
	2012	2013	2014	2015 to 2017	2018	2019	2020	2021	2022	2023	2024	2025
Eritrea	1	1	1	1	1	1	2	2	3	3	3	3

Achievement of required and recommended outcomes for the PCP Stage 1:



FMD outbreaks & surveillance:

- Reports from 2014 – 2017 indicate that there are 40 outbreaks reported
- outbreaks are investigated clinically specimens are collected from FMD affected cattle and sent to the laboratory for confirmation

FMD Control Measures:

- Clinical investigation and sample submission to the lab
- Vaccination of dairy high production cattle from the regions: Zoba Debub, Anseba and Maekel. Local breed not vaccinated
- SAT 2 ,O and A inactivated FMD vaccine , procured from BVI with PANVAC certificate
- Awareness campaign targeting farmers
- Training to health staff and farmers
- Some of the control activities conducted in coordination with other TAD control measures

Other notes and priorities for the future:

- Dairy sector important for food security
- Request a PVS follow up mission

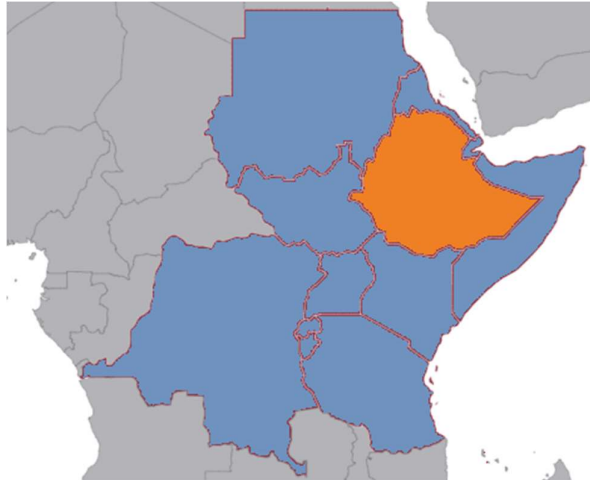
National gaps:

- Training on diagnostic, epidemiology (surveillance design, vaccination strategy) and animal movement control

Needs for support

- Need of laboratory reagents procurement
- Enhance technical capacity
- Procurement of vaccines and equipment for field activities and laboratory diagnostic

Federal Republic of Ethiopia



PCP-FMD Stage

2014 -

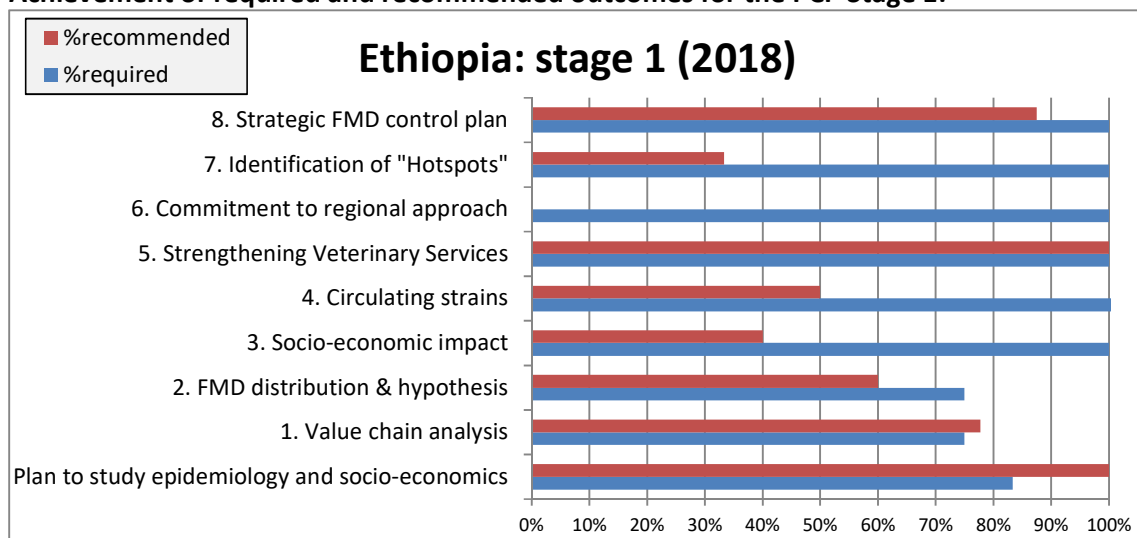
2018 **1**

OIE PVS evaluation PVS 2011
Gap 2012

Provisional Roadmap 2018

Country	Validated Stages					Provisional Stages (not validated)							
	2012	2013	2014	2015 to 2017	2018	2019	2020	2021	2022	2023	2024	2025	
Ethiopia	1	1	-	-	1	1	1	1	2	2	2	2	

Achievement of required and recommended outcomes for the PCP Stage 1:



FMD outbreaks & surveillance:

- FMD endemic throughout the country
- Disease occurrence wide spread
- Passive surveillance targeting cattle (2014-2017) identified over 40 outbreaks per year

FMD Control Measures:

- Vaccination and control plan includes 10 km radius feedlots, abattoirs and quarantines, targeting dairy cattle and exported animals
- Identified circulating strains : SAT1, SAT2, A and O, with a higher prevalence for O and SAT2

Other notes and priorities for the future:

- FMD outbreaks affect the dairy production
- Socio-economic impact conducted but no officially endorsed national FMD control plan
- Prevalence in pastoral areas is higher than in mixed crop-livestock systems
- Risk hotspots identified along pastoral areas (specifically during draught periods), along open borders with uncontrolled movement, in seasonal mobility and live-animal markets, leading to uncontrolled mixing of cattle
- Strengthening of diagnostic capacity at both National Animal Health Diagnostic and Investigation Centre (NAHDIC) and regional veterinary laboratory

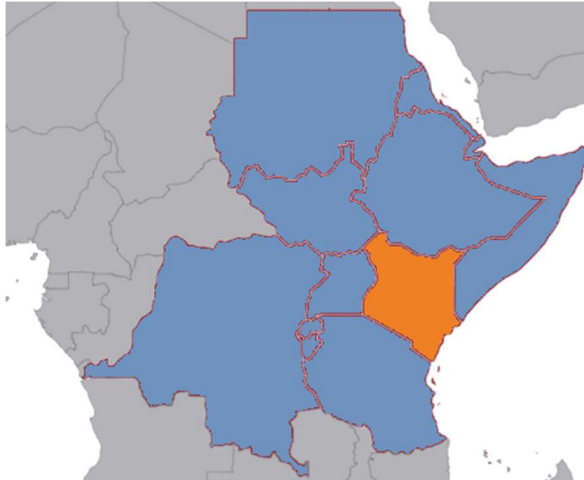
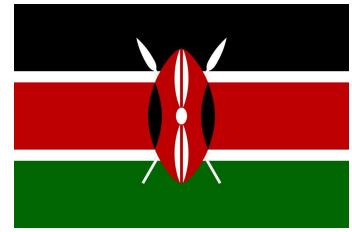
National gaps:

- Disease surveillance and reporting, outbreak investigation and monitoring to identify circulating viruses and efficacy of vaccination campaign
- Limited diagnostic capacity (lab equipment, installation, calibration and maintenance), cold chain and quality management system
- Low level of understanding of the epidemiological situation and its socio-economic impact
- Limited understanding of the role of wildlife and bio-security measures among the producers
- Limited information exchange, harmonization among IGAD countries and cross-border coordination

Needs for support

- Risk analysis, epidemiology, bio security
- Vaccination efficacy and post-vaccination monitoring

Republic of Kenya



PCP-FMD Stage

2014 1

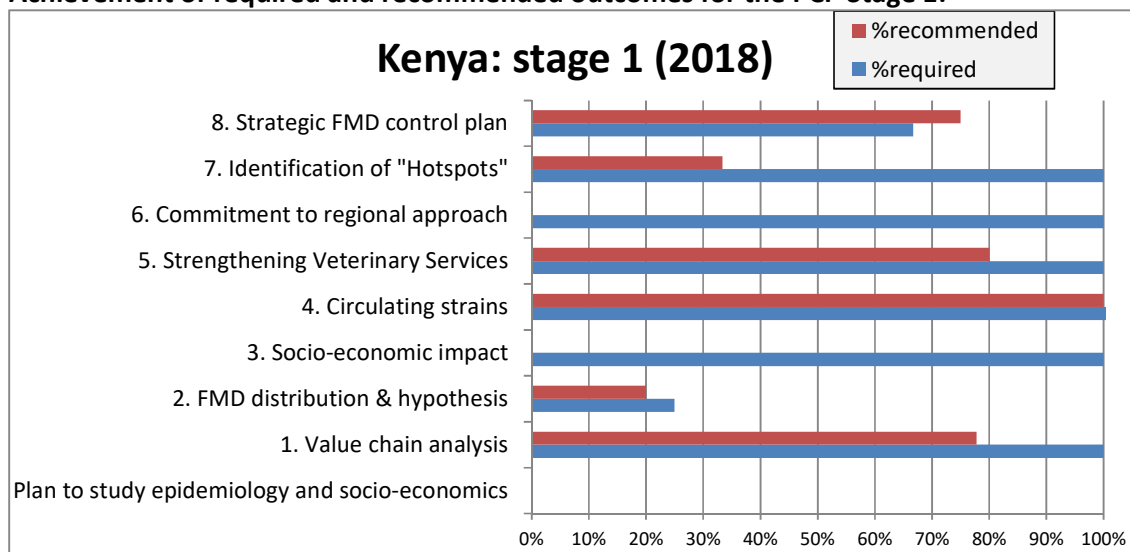
2018 **1**

OIE PVS evaluation PVS 2011 Gap 2011

Provisional Roadmap 2018

Country	Validated Stages					Provisional Stages (not validated)							
	2012	2013	2014	2015 to 2017	2018	2019	2020	2021	2022	2023	2024	2025	
Kenya	1	1	1	1	1	2	2	2	2	2	3	3	

Achievement of required and recommended outcomes for the PCP Stage 1:



FMD outbreaks & surveillance:

- Passive surveillance: a total of 65 outbreaks of FMD were reported in 23 of the 47 counties in the country between January 2017 and January 2018. Type O (29 outbreaks), SAT1 (18 outbreaks), A (11 outbreaks) and SAT2 (7 outbreaks).
- Genetic characterization of Serotype O & SAT1 indicated the emergence of serotype O strains divergent from the current vaccine strain.
- National random survey was conducted on August 2016 (STSD Project)
- Active surveys address more than one disease (e.g. FMD, CBPP, PPR and RVF)

FMD Control Measures:

- Quarantine
- Biosecurity
- Ring vaccinations (cattle)
- Investigations - Epidemiological investigation - Sampling - sera, epithelial tissue & probangs
- Movement controls - movement permits
- A national laboratory specifically for FMD is in place.
- A FMD vaccine production institute - Kenya Veterinary vaccine production institute (KEVEVAPI)
- Awareness creation - An FMD-SMP booklet has been developed, printed and disseminated to all the CDVS's in the country

Other notes and priorities for the future:

- FMD control strategy was developed in July 2012, reviewed in Feb 2018 and validated by stakeholders on 20th June 2018. It has a strong focus on establishing disease free zones in the next 5-10 years
- Good understanding of the risk hotspot
- Few socioeconomic studies available: Two case reports in Nakuru county estimated losses due to FMD outbreaks in large herds of US\$15,000 (Mulei et al., 2001) to >US\$100,000 per farm (Kimani et al., 2005)
- Financial gap in the implementation of FMD control strategy
- Follow up PVS mission requested

National gaps:

- Comprehensive plan to gain insight into the epidemiology and socio-economic impact of FMD.
- Better understanding the role of wildlife, small ruminants and pigs in FMD transmission

Needs for support

- Technical and financial support to implement the FMD control and elimination strategy
- Regional coordination
- Better involvement of the private sector - willingness to pay

Republic of Rwanda



PCP-FMD Stage

2014 **2**

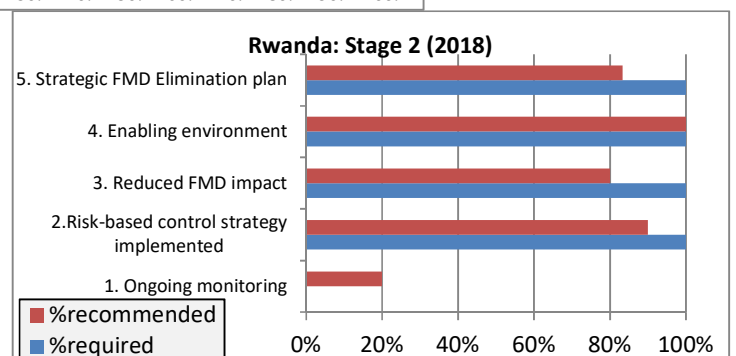
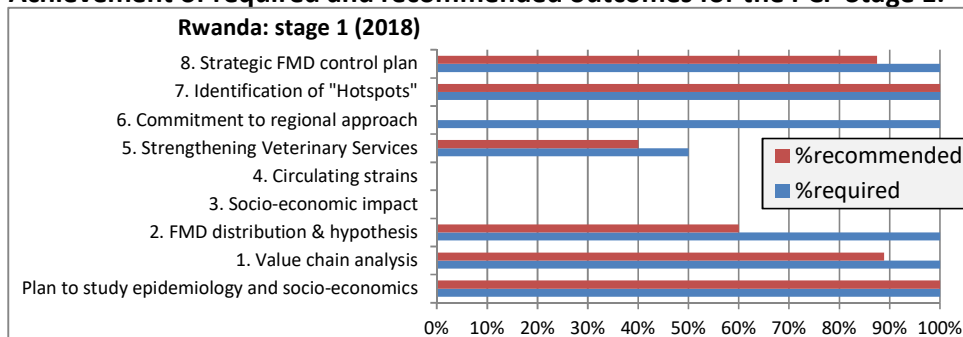
2018 **2**

OIE PVS evaluation PVS 2008
Gap 2010
Legislation
2014

Provisional Roadmap 2018

Country	Validated Stages					Provisional Stages (not validated)						
	2012	2013	2014	2015 to 2017	2018	2019	2020	2021	2022	2023	2024	2025
Rwanda	1	2	2	2	2	3	OIE					

Achievement of required and recommended outcomes for the PCP Stage 1:



FMD outbreaks & surveillance:

- In February/March 2017, an outbreak of FMD in cattle herds that were expelled from Tanzania. The 3,292 cows were contained in 1 sector of Gatsibo District.
- Results showed SAT 2 circulating. Surveillance in bufaloes gave negative results
- Surveillance supported by strong administrative structures that go up to village level.
- There is a mechanism of information flow from the sector through the Joint Operation and Communication and messages shared on social media and later formally and control measures follow.
- Strong collaboration of different players during and after outbreaks (farmers, local authorities, security organs and veterinary services)
- Epidemio-surveillance conducted twice a year

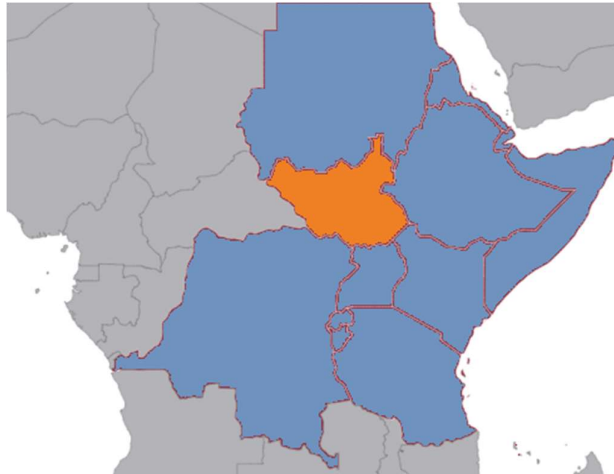
FMD Control Measures:

- Vaccination in 3 districts of Eastern Province that are bordering Tanzania that are at risk of the disease (Nyagatare, Kayonza and Kirehe Districts). Central, North, West and South are not vaccinated
- Quadrivalent vaccine (A,O,Sat1 and SAT 2) from KEVEVAPI Kenya
- Post vaccination monitoring is routinely done in the areas at risk
- Border control. Veterinary staff posted at all our borders. Along the border are CAHW to support the veterinarians as well as security organs who report illegal animal movement.
- Communication: The national radio has a weekly spot devoted to Agriculture and animal resources where information is given. In addition to a one hour once a month radio talk show where farmers call in.
- Monthly community work discussions: Every last Saturday of the month messages are given to the public including risk and control measures
- A contingency plan for FMD control has been developed, discussed and validated in June 2017.

Other notes and priorities for the future:

- National control plan is to progressively have Rwanda free of the disease by 2020 so that trade in livestock and livestock products can be done unhindered
- Strengthen the Epidemiosurveillance, control animal movement, continue reducing FMD risk areas of the 3 Districts bordering Tanzania
- Rwanda has launched a 6 year plan for transformation of Agriculture with sufficient funds for implementing the control plan

South Sudan



PCP-FMD Stage

2014 **1***

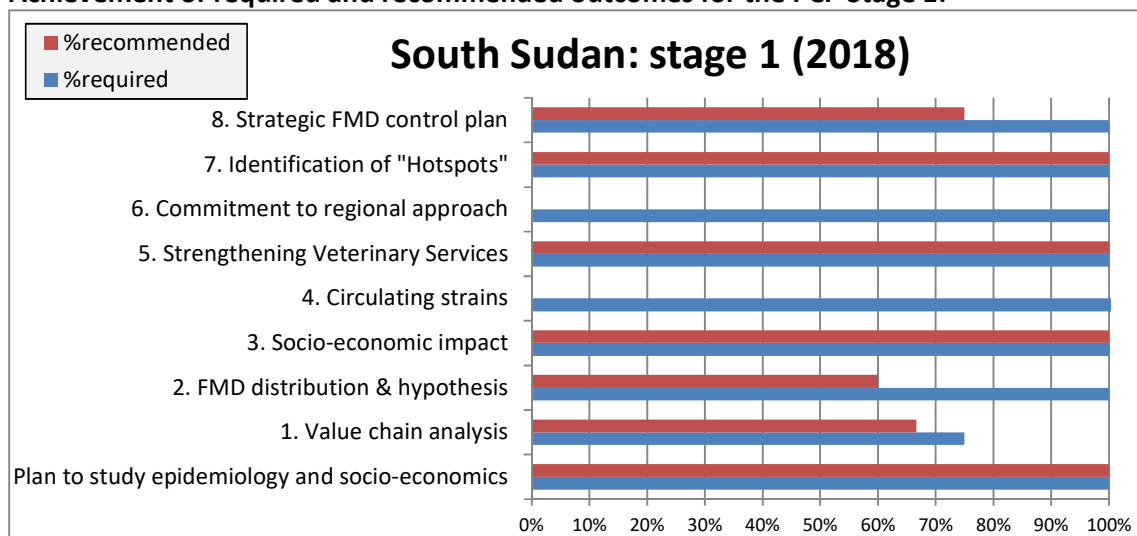
2018 **1**

OIE PVS evaluation

Provisional Roadmap 2018

Country	Validated Stages					Provisional Stages (not validated)							
	2012	2013	2014	2015 to 2017	2018	2019	2020	2021	2022	2023	2024	2025	
South Sudan	0	1	1*	1*	1	2	2	3	3	4	4	OIE	

Achievement of required and recommended outcomes for the PCP Stage 1:



FMD outbreaks & surveillance:

- FMD endemic
- Passive surveillance targeting priority TADs (FMD, PPR, RVF, CBPP) and other diseases (LSD, trypanosomosis, anthrax, rabies)
- FMD overall seroprevalence 55% (NSP ELISA serosurveillance)

FMD Control Measures:

- No vaccination yet conducted

Other notes and priorities for the future:

- NGOs support the government and fill gaps in services delivery, CAHW fills the gap in terms of disease surveillance
- Cost recovery applied in vaccination programme
- FMD socio-economic impact study (FAO project) conducted on individual pastoralists and economy of south Sudan : estimated national impact of FMD on south Sudan's economy estimated **USD 164 million** per year, vs minimal costs for FMD control strategy in pastoral systems, estimated **USD 14.4 million** per year

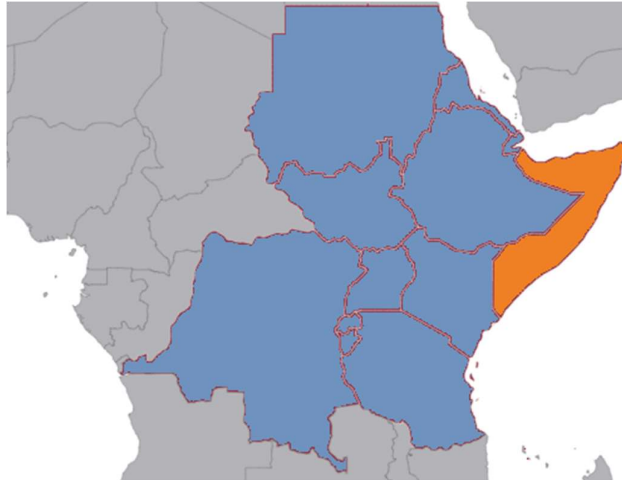
National gaps:

- Social and cultural beliefs
- Inadequate qualified human resources in disease surveillance and control
- Lack of supportive policies, legislations and laws in diseases surveillance and control
- Inadequate surveillance and laboratory Equipment, laboratory Kits and reagents
- Lack of public awareness on importance of FMD and other TADs

Needs for support

- Development of policy, strategic plan and regulations
- Building capacity of animal health services providers in surveillance, laboratory and disease control
- Support in provision of required surveillance GIS, surveillance and laboratory Equipment, laboratory Kits and reagents

Somalia



PCP-FMD Stage

2014 -

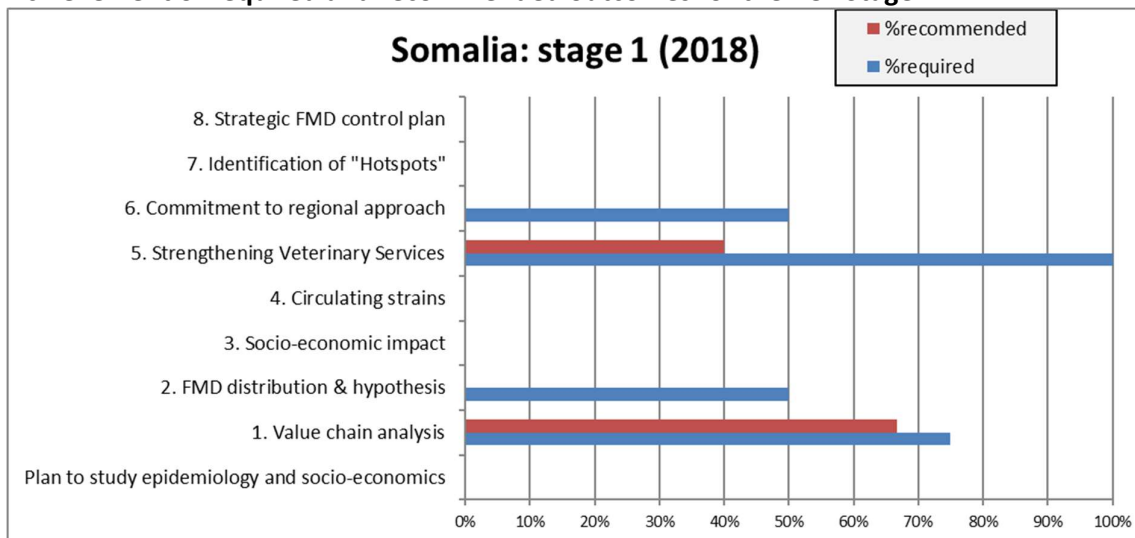
2018 **1**

OIE PVS evaluation -

Provisional Roadmap 2018

Country	Validated Stages					Provisional Stages (not validated)						
	2012	2013	2014	2015 to 2017	2018	2019	2020	2021	2022	2023	2024	2025
Somalia	1	1	1	1	1	1	2	2	2	2	2	3

Achievement of required and recommended outcomes for the PCP Stage 1:



FMD outbreaks & surveillance:

- FMD (in Somali Cabeeb) first reported in 1901-1904
- Periodic outbreaks recorded and FMD virus types O , A and
- SAT2 recorded between 1957 and 1985 in different season
- Total cessation of FMD surveillance activities and vaccination in Somalia since 1991
- Passive surveillance based on reporting from farmers, Vet officers, CAHWs and abattoirs
- Hot spots are identified: Southern regions namely South West (Gedo, Bay, Bakol, L/shabelle), Jubbaland (M/Juba, L/Jubba), Hir/Shabelle,(Hiran and Middle shabelle), livestock markets, water points, grazing areas, borders, ports, trade and migration routes, and abattoirs

FMD Control Measures:

- Since July 2006, all cattle exported from Barbara vaccinated against serotypes O and A due to requirements by Yemen and UAE
- Ring vaccination in response to FMD outbreaks
- Targeted vaccinations to control & reduce the impacts
- Awareness on the benefits of the movement restrictions and bio-security during outbreaks

Other notes and priorities for the future:

- The economic impact of the disease is due to direct losses limiting livestock productivity affecting food security and limited the exportation potential of the livestock sector.
- Overall the direct
- Political instability generating great insecurity problems

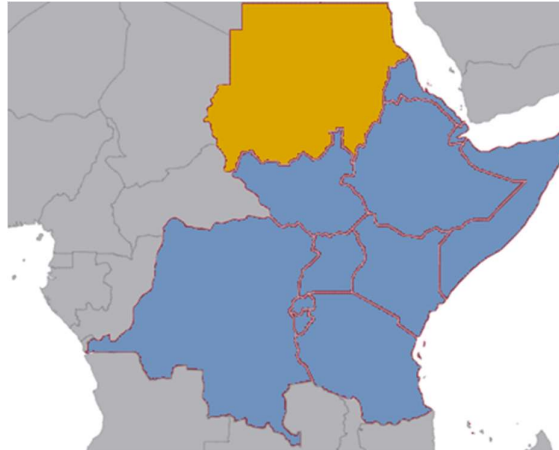
National gaps:

- PVS mission never conducted
- Improve animal movement at national and regional level

Needs for support

- Training on diagnostic and epidemiology
- Enhance the vaccination strategy

Republic of Sudan



PCP-FMD Stage

2014 2*

2018 **2***

OIE PVS evaluation

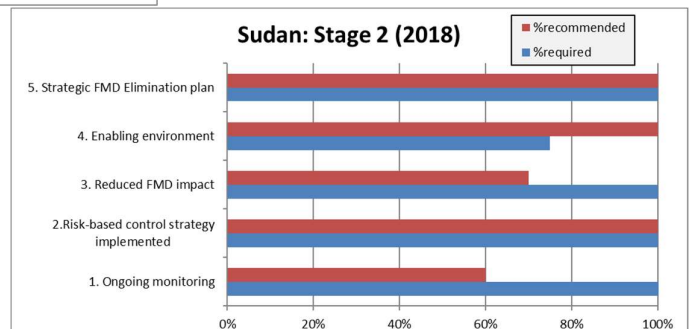
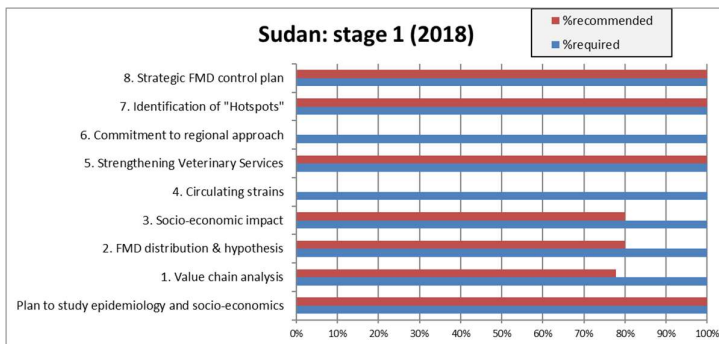
PVS 2013
Gap 2014

Provisional Roadmap 2018

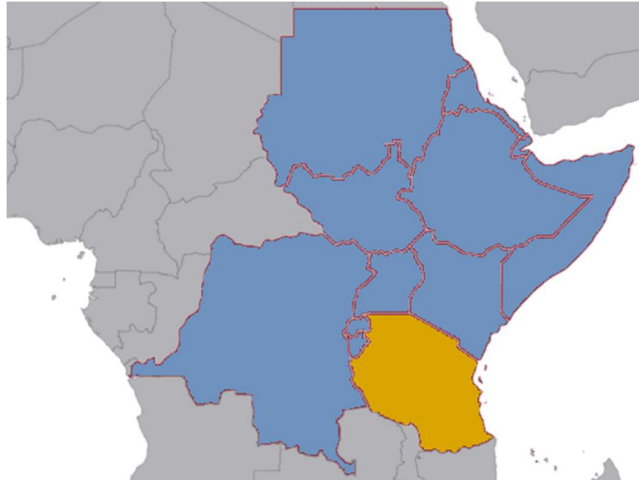
Country	Validated Stages					Provisional Stages (not validated)						
	2012	2013	2014	2015 to 2017	2018	2019	2020	2021	2022	2023	2024	2025
Sudan	1	2	2*	2*	2*	2	3	3	3	4	4	OIE

* indicates a provisional status given to the countries (countries had 6 months to provide additional information including a Risk Based Strategic Plan - if not, they will be downgraded to the previous stage)

Achievement of required and recommended outcomes for the PCP Stage 2:



United Republic of Tanzania



PCP-FMD Stage

2014 1

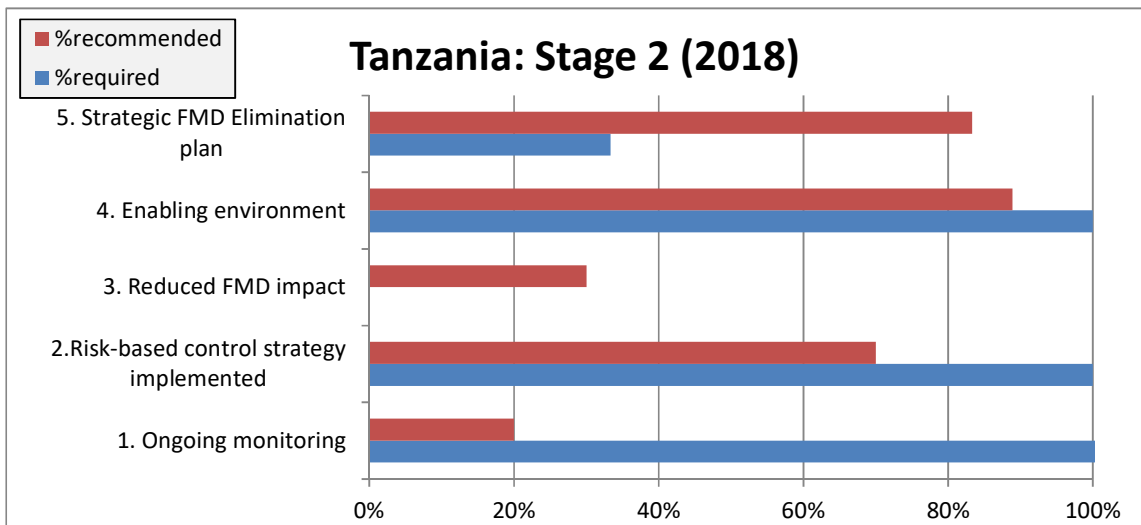
2017 **2***

OIE PVS evaluation PVS 2016
Gap 2009

Provisional Roadmap 2018

Country	Validated Stages			Provisional Stages (not validated)							
	2011	2012 to 2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Tanzania	1	-	2*	2*	2	2	3	3	3	3	3

Achievement of required and recommended outcomes for the PCP Stage 2:



FMD outbreaks & surveillance:

- Outbreaks every year, with less than 5% animal dying
- Serotypes SAT1, SAT2, SAT3, A, O
- FMDV isolated, so far come from East Africa
- 31 outbreaks in 2017 (28 samples collected and sent to Central vet lab for sequencing) - 9 samples sent in 2018
- High seroprevalence in pastoral and agro-pastoral areas (64-66% as well as buffalo in national parks)

FMD Control Measures:

- Six hotspots identified on the border with Uganda, Kenya (especially near the national parks)
- Vaccines purchased from Kenya and Botswana
- Full cost recovery for vaccination which is done for cattle only and mainly for exports to Comoros

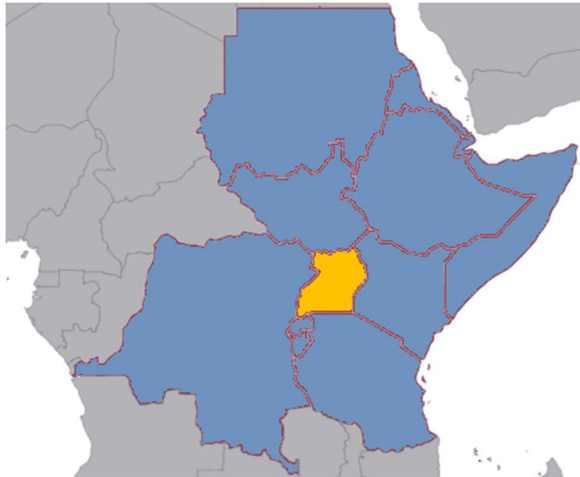
Other notes and priorities for the future:

- Cattle identification in the whole country (at village and district level)
- 30% of the territory reserved for conservation
- Cost-benefit analysis done in 2017 (with support of STDF) of implementing disease free zones. Other scenarios not considered.
- First draft of RBSP for FMD control and getting guidance through GFTADs PSO system
- FMD designed as priority disease for vaccination (among 10): CBPP, PPR, Anthrax, Rabies,
- Other TADs: proposal to establish a disease-free zone In South-West of the country
- Support from international donors in Harmonization of Cross border disease surveillance and control in East Africa through SMP - AH project
- Tanzania plans to go for an FMD free compartment

National gaps:

- Understanding FMD prevalence and situation among wildlife
- Identification of risk factors (apart from animal movement) and other hotspots
- No socio-economic impact information, nor virus characterization

Republic of Uganda



PCP-FMD Stage

2014 **1**

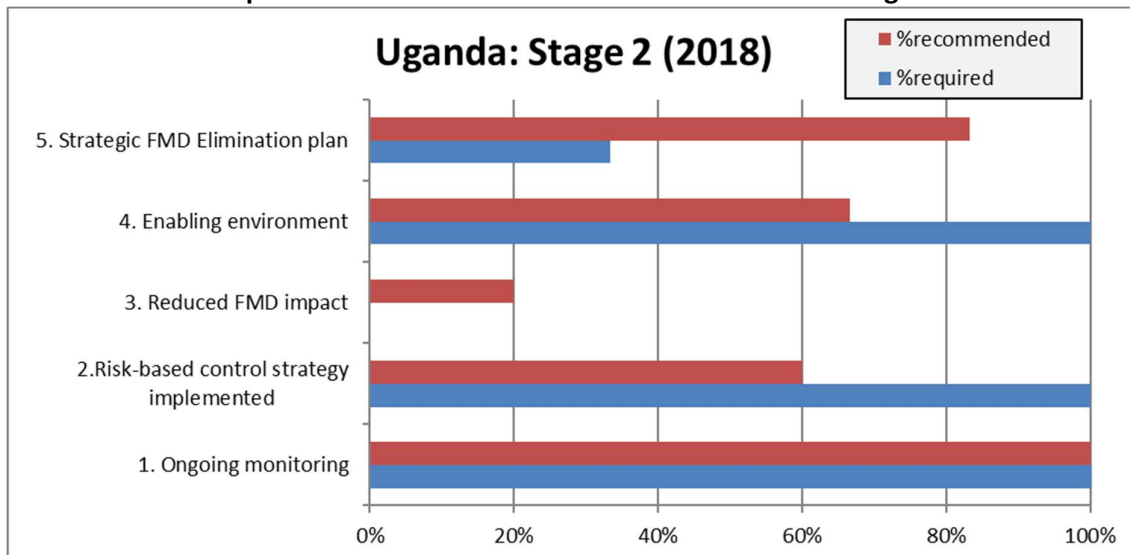
2018 **2**

OIE PVS evaluation PVS 2007
Gap 2011

Provisional Roadmap 2018

Country	Validated Stages					Provisional Stages (not validated)						
	2012	2013	2014	2015 to 2017	2018	2019	2020	2021	2022	2023	2024	2025
Uganda	1	1	1	1	2	2	2	3	3	4	4	OIE

Achievement of required and recommended outcomes for the PCP Stage 2:



FMD outbreaks & surveillance:

- Serotypes SAT1, SAT2, SAT3, O, A
- Since 2013 only SAT1 and O (37 outbreaks in 2017)
- FMD sero-surveys and others TADs –STSDs AU-IBAR-2016

FMD Control Measures:

- Quarantine, targeted vaccinations, control of animal movement, surveillance, and sero-monitoring, FMD awareness campaigns
- Vaccination against SAT1, SAT2, Type O & A

Other notes and priorities for the future:

- FMD- activities contribute to control of other major TADs (e.g. PPR, CBPP)
- FMD activities are under resourced
- Need to improve cross border control
- Inadequate awareness on livestock disease control issues
- Inadequate lab services in the country
- Polices and laws are inadequate

National gaps:

- Develop technical skills and capacities for vaccine matching, vaccine monitoring
- Socio-economic studies to generate data for increased funding
- External support to supplement government funding
- Regional programs for concerted FMD control
- Technical support from OIE to establish FMD control zones and compartments

Needs for support

- Inadequate resources
- Reduce cost of vaccines
- Improve cross border movement control
- Improve lab capacity
- Improve FMD Polices and regulations

Annex 5 – PCP-FMD Stage detailed assessment – East African countries

PCP-FMD Assessment of Eastern Africa Countries RAG considerations

Country	RAG proposal	Comments
Burundi	0	<ul style="list-style-type: none"> • PVS mission conducted in 2007, Gap analysis in 2012 • FMD endemic but current FMD situation unknown • No diagnostic of the disease (all information based on passive surveillance) • No characterization of the virus done • Bovine, ovine, and porcine imported from Tanzania (for slaughter) and Uganda (breeding) • Imported animals (mainly for slaughter within one month) inspected and sorted in the live animal markets at the borders • Some animals imported for breeding purposes • 6 border/quarantine posts are being built (3 ready for use) aim at improving control on imported animal (related regulation for their use not yet finalized) • Import regulations in place to prevent import of infected animals: FMD vaccination requirement for imported animals • Collaboration with Sciensano (former CODA-CERVA) laboratory (Belgium) to prepare a twining and to plan characterization of FMD serotypes • Vaccination strategy targets important animal markets and borders with neighboring countries • No socio-economic study conducted <p>Recommendations</p> <ul style="list-style-type: none"> → Propose to assess at stage 0 and present, within 6 months, a well finalised Risk Assessment Plan → The Working Group propose to arrange for a PSO, in order for the country to monitor the circulating virus

Country	RAG proposal	Comments
Comoros	1	<ul style="list-style-type: none"> • PVS mission conducted in 2011, Gap analysis in 2016 • Never had clinical reports of FMD through the passive surveillance system and no FMD vaccination is being performed • Live animals are imported from Madagascar (FMD free) and from Tanzania (where FMD is endemic). Animals (cattle, sheep, goats) are being vaccinated in a quarantine station in Tanzania, where they remain for a 21 day clinical disease monitoring prior to export to Comoros. Vaccine used is either KEVEVAPI or BVI • Once imported, animals are typically slaughtered within a month • Of the three islands, imports only go to Grande Comore. Animals move from the other islands to Grande Comore but not the other way • Risk analysis for FMD introduction is currently being done by CIRAD • No serosurveillance has ever been done for FMD. • Intend to start doing FMD serosurveillance of imported animals, starting in October 2018 • General lack of human resources in the veterinary services • No socio-economic impact studies done, or planned • Laboratory capacity is developing through actions as part of PPR control. However, they are reliant on other countries for all FMD related testing • Country aims to be in PCP stage 4 by 2022, once the activities have been finalised to demonstrate the absence of infection and the risk assessment is developed <p><u>Recommendations</u></p> <ul style="list-style-type: none"> → Country proposed in PCP-FMD Stage 1 → Several elements still need addressing → The WG will provide the country with a RBSP template, once translated into French

Country	RAG proposal	Comments
Eritrea	1	<ul style="list-style-type: none"> • RAG in 2014 advised to strengthen the vet services • PVS mission in 2009 and GAP analysis in 2011 • Dairy sector important for food security • Only vaccination in dairy cattle (50% paid by the producers) • Virus not typed but samples from 2017 available • 2017 serology indicated 40% seroprevalence at country level • Vaccine supply under Government supervision <p><u>Recommendations</u></p> <ul style="list-style-type: none"> → Define the short/medium term country vision with regards FMD control → Continuing gaining good understanding of value chain and FMD epidemiology → Engage stakeholders in the planning and also in the financial contribution of the control plan to ensure sustainability → Consider a follow up mission to strength the veterinary services → Submit samples from 2017 to WRL for characterization and vaccine matching → Ensure vaccination monitoring

Country	RAG proposal	Comments
Ethiopia	1	<ul style="list-style-type: none"> • PVS mission conducted in May 2011, Gap analysis in September 2012 • FMD control strategy focus on the vaccination on prioritized areas located in a 10 km wide South-North cattle corridor along a highway (including feedlots, dairy farms and quarantine areas) and associated to movements of animals produced in the South and marketed for exports. • There is information available on circulating strains in different regions (SAT 1, SAT 2, O, and A). Serotypes O & SAT 2 have the highest prevalence • Passive and active surveillance activities reported for 2014-2017 identified over 40 outbreaks per year • Prevalence in pastoral areas appears to be higher than in mixed crop-livestock systems • Identified hotspots not addressed in the strategy, which is based on a socio economic studies. The FMD control strategy is developed to reduce the impact of FMD on export capacity, rather than controlling FMD in the country • RBSP in the latest stages of development <p><u>Recommendations</u></p> <ul style="list-style-type: none"> → Demonstrate good understanding of disease in the entire country → Clear identification of hotspots → Provide the RBSP as soon as it is ready. It should ensure effective monitoring of the activities

Country	RAG proposal	Comments
Kenya	1	<ul style="list-style-type: none"> • PVS and GAP mission in 2011 • Good progress in strengthen the vet services (request PVS mission) • National plan endorsed by stakeholders and government • Decentralised model. Decision making process and budget at local level. Different strategies (i.e. who pay for vaccine) at county level • Central Vet Services develop guidelines for disease control to harmonize actions • Risk hotspot identified • Serosurvey conducted in 2016. Regular sample typing • Main target dairy sector - Food security • Vaccines produced at national level • Interested to explore regionalization to gain access to external market aiming at creating zones with low prevalence within 5 years. Funding from EU to support this approach <p><u>Recommendations</u></p> <ul style="list-style-type: none"> → Develop monitoring system for RBSP that can be implemented under PCP2 including regular samples characterization → Submit the national plan (RBSP) when ready → Further work on feasibility of the approach to engaging decentralized public and private partners → Explore feasibility of implementation OIE regionalization principles

Country	RAG proposal	Comments
Rwanda	2	<ul style="list-style-type: none"> • In 2014 RAG advised to consolidate stage 2 by building capacity, conduct socio-economic studies and identify FMD hotspots. Further understanding of the serotypes and strains circulating with special focus on the pastoralist and wildlife systems was necessary before progress to next step • PVS mission 2008, Gap in 2010 and legislation in 2014. Expecting to request a Follow up mission in 2018 • High risk areas: 3 districts bordering Tanzania. Last outbreak 2017 (SAT2). Sample typed and characterised in a private lab • Vaccination only in high risk areas or as response to outbreak (ring vaccination) • Animal moving in from Uganda and Tanzania and out to Burundi and DRC. No common grazing • Strong border control. Involvement of local leaders and private sector • Private sector and community engagement. • Serosurvey twice a year (as part of surveillance of other 6 diseases). During last 3 years no NSP positive animals • PVM in vaccinated animals. Stamping out NSP positive animals • National plan and contingency plan drafted in collaboration with stakeholders, endorsed by government • Goal is to reach PCP stage 5 by 2020. <p><u>Recommendations</u></p> <ul style="list-style-type: none"> → PCP stage 2 → Samples/sequence need to be submitted to WRL for interpretation of results and vaccine matching. → The National Plan and results of previous year serosurveillance should be submitted for RAG consideration (key points: surveillance, PVM)

Country	RAG proposal	Comments
South Sudan	1	<ul style="list-style-type: none"> • No PVS assessment conducted, due to insecurity in the country. Self-assessment performed for PCP • FMD is endemic. 15 outbreaks were reported in the last year • Country makes extensive use of the private sector and community animal health workers (CAHW) for surveillance and other animal health activities • No vaccination is currently being done yet • An FAO project in the country has involved two consultants from Kenya, to provide assistance on developing a risk based strategic plan for FMD, including an economic impact assessment of FMD • Assessment ongoing, done among pastoralists, concluded of an estimated national level cost of 164 million USD/year (1,437USD average loss per affected non-vaccinated farm, vs 1,318USD benefit per year for vaccination) • NSP ELISA serosurveillance revealed a seroprevalence of 55% (8,500 samples in 8/10 states, two states not sampled due to insecurity) • Samples from the last two years currently in Embakasi , for Kenya to undergo serotyping. Samples will be sent to WRLFMD for sequencing and phylogenetic analysis (around 30-40 samples) • An assessment of cold chain capacity has been performed • Capacity lacking in training of staff, surveillance and disease control, and laboratory diagnosis • Need to conduct a public awareness campaign • Waiting for consultant reports before developing RBSP. Plan to deliver vaccination through private sector with cost recovery • Social and cultural beliefs, as value attached by society to livestock may hamper disease control effort • Inadequate Veterinary services delivery system <p><u>Recommendations</u></p> <ul style="list-style-type: none"> → Advance from PCP-FMD provisional stage 1 to stage 1 with recommendation to send the completed RBSP once completed for review by the working group. → Country should also make use of PCP support officer (PSO) that was assigned previously due to the country being in provisional stage 1

Country	RAG proposal	Comments
Somalia	1	<ul style="list-style-type: none"> • No PVS mission conducted • High volume of exportation (more than 5.3 M animals a year) • Political instability, majority of population are nomadic • Main objective is to maintain/increase export • Vaccination only those animals to be exported, some animals are tested prior movement. Blood samples are available but never used for serosurveys • One Health National Strategy being drafted in collaboration with MoH, MoA and environment, covering 12 diseases including FMD • Some community leaders have mobile phone for disease reporting (passive surveillance) • Limited of human and financial resources <p><u>Recommendations</u></p> <ul style="list-style-type: none"> → Need to establish a functioning system for collecting/typing virus circulating in the country → Pre-requisite for vaccination based export trade → Request support of FAO official based in the country

Country	RAG proposal	Comments
Rep of Sudan	2*	<ul style="list-style-type: none"> • PVS follow up mission in 2013, Gap in 2014, Laboratory in 2015 and legislation in 2016 • In provisional stage 2 in 2014 • RBSP to be finalised by the end of 2018 • Serosurvey conducted regularly (around 59% seropositive) • Risk assessment and value chain analysis to be completed • Exporting vision and willing to use regionalization (zone, compartments) to support exportation • 5 years plan to strength the vet services based on PVS results submitted to parliament for approval and budget allocation • Private sector heavily involved in the planning and implementation • Samples ready to be sent to WRL for typing and vaccine matching <p><u>Recommendations</u></p> <ul style="list-style-type: none"> → Monitoring of the Control Plan (RBSP) and the vaccination → Vaccine effectiveness studies → Submit the RBSP to the FMD WG by end of 2018 → Provide support on zoning/regionalization

Country	RAG proposal	Comments
Uganda	2	<ul style="list-style-type: none"> • PVS mission in 2007 and Gap in 2011 • RBSP accepted by RAG in 2015 • In some regions PVM was conducted (no pre-vaccination samples were taken) • Increase number of outbreaks observed in 2017 (animal movement-drought, increase awareness) • High involvement of the community in the reporting (passive surveillance) -Parish level livestock committees to undertake community sensitization and policing/ enforcement of animal movements • Limited understanding of socioeconomic impact <p><u>Recommendations</u></p> <ul style="list-style-type: none"> • Need to institutionalise monitoring and evaluation system, in line with PCP2 requirements • Finalise the analysis of the 2016 cross-sectional survey. Some IT support may be needed • Work needed on sustainability of vaccination. Explore public-private partnership • Integrate PCP approach into EU funded activities on livestock sector • Explore feasibility of implementation of OIE regionalization principles

Country	RAG proposal	Comments
Countries interviewed but not assessed (assessed by RAG SADC in 2017)		
Democratic Republic of Congo	1*	<ul style="list-style-type: none"> • Insecurity largely hampers the actions of veterinary services • The template for Risk Assessment Plan, developed by the FMD working group, will be sent to DRC in order to improve the first draft received • A questionnaire to evaluate the socio-economic impact of FMD, has been prepared to be filled by stakeholders • A serosurvey was done in 2005, among cattle, in zones with FMD outbreaks) • Epithelium sampling is planned in Ruzizi valley (FMD endemic): the samples can then be used for serosurvey
Tanzania	2*	<ul style="list-style-type: none"> • FMD endemic in Tanzania • A, SAT 1, SAT 2 and O present • FMD is one of the 10 priority diseases in Tanzania, together with CBPP, PPR, Rabies, Newcastle, Anthrax, Brucellosis, LSD, RVF • The veterinary services consider risk based vaccination as a way to minimize the presence of FMD in the country • Should try to evaluate the impact of the disease in large producers • Vaccination is conducted twice a year targeting primarily bovine