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3rd GF-TADs West Africa Roadmap Meeting for Foot and Mouth Disease

Report of the virtual meeting
8–11 November 2021



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Vision for the West Africa Roadmap for Foot and Mouth Disease Control

The vision for this roadmap is regional cooperation among African countries for the progressive control of foot and mouth disease leading towards freedom from clinical disease by 2027 for regional economic development, food security and poverty alleviation.

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Finally, FAO and WOAH would like to express their deep appreciation to all Member Countries of the West Africa Roadmap for Foot and Mouth Disease, the Economic Community of West African States' Regional Animal Health Centre (Bamako, Mali), the National Veterinary Research Institute (Vom, Nigeria) and the Laboratoire National de l'Elevage et de Recherches Vétérinaires (Dakar, Senegal) for their commitment and contributions over the years and their active participation in the 3rd West Africa Roadmap Meeting for Foot and Mouth Disease. This meeting was organised under the umbrella of the Global Framework for the Progressive Control of Transboundary Animal Diseases, by its Foot and Mouth Disease Working Group, with support from the United States Defense Threat Reduction Agency (through the project GCP/GLO/704/USA).

Abbreviations

ANSES	Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail	GF-TADs	Global Framework for the Progressive Control of Transboundary Animal Diseases
AU-IBAR	African Union Interafrican Bureau for Animal Resources	KEVEVAPI	Kenya Veterinary Vaccines Production Institute
AU-PANVAC	Pan African Veterinary Vaccine Center of the African Union	LNERV	Laboratoire National de l'Élevage et de Recherches Vétérinaires
BVI	Botswana Vaccine Institute	Members	Member Countries and Territories or Member States
CAHW	Community animal health worker	NSP	Non-structural proteins
CIRAD	Centre de coopération internationale en recherche agronomique pour le développement	NVRI VOM	National Veterinary Research Institute, Vom, Nigeria
CVO	Chief Veterinary Officer	OCP	Official Control Programme
DTRA	United States Defense Threat Reduction Agency	PCP-FMD	Progressive Control Pathway for Foot and Mouth Disease
ECOWAS	Economic Community of West African States	PSO	PCP-FMD Support Officer
ECOWAS-RAHC	Economic Community of West African States Regional Animal Health Centre	PVS	Performance of Veterinary Services
ECTAD	Emergency Centre for Transboundary Animal Diseases	RAG	Regional Advisory Group
EMA-i	Event Mobile Application	RAP	Risk-Assessment Plan
EMPRES-AH	Emergency Prevention System for Animal Health	RBSP	Risk-Based Strategic Plan
EuFMD	European Commission for the Control of Foot-And-Mouth Disease	SAT	PCP-FMD Self-Assessment Tool
FAO	Food and Agriculture Organization of the United Nations	TADs	Transboundary animal diseases
FAO RAF	FAO Regional Office for Africa	TRAC	PCP-FMD tool for review and communication
FMD	Foot and mouth disease	VLC	Virtual Learning Centre
FMDV	Foot and mouth disease virus	VPP	Veterinary paraprofessional
FMD-WG	GF-TADs Foot and Mouth Disease Working Group	WAHIS	World Animal Health Information System
		WCA	West and Central Africa
		WOAH	World Organisation for Animal Health
		WRLFMD	World Reference Laboratory for Foot-and-Mouth Disease



Introduction

BACKGROUND

Foot and mouth disease (FMD) severely affects the productivity of livestock, disrupting regional and international trade in animals and animal products. The most significant impacts of the disease in low- and middle-income countries are losses in production, utility and income, which together affect livelihoods and impact food security and nutrition of farmers.

In order to reduce the FMD burden, the Food and Agriculture Organization of the United Nations (FAO) and the World Organisation for Animal Health (WOAH, founded as OIE) developed a 15-year [Global FMD Control Strategy](#) in 2012. Since the Global FMD Control Strategy was endorsed, several initiatives have been identified to establish an enabling environment for FMD control. One of these initiatives is to encourage countries to progressively control FMD using the [Progressive Control Pathway for FMD](#) (PCP-FMD) at the country level, with efforts coordinated at the regional level. Around 80 countries are currently engaged in the implementation of the PCP-FMD to reduce or eliminate FMD virus (FMDV) circulation (updated map [here](#)).

For effective implementation of the Global FMD Control Strategy and to address some of the anticipated challenges, regional FMD roadmap platforms have been successfully established to assess progress in FMD control.

Foot and mouth disease roadmap meetings are organised under the umbrella of the FAO/WOAH Global Framework for the Progressive Control of Transboundary Animal Diseases ([GF-TADs](#)), by its FMD Working Group (FMD-WG), with technical support from the European Commission for the control of FMD ([EuFMD](#)). Participants include Chief Veterinary Officers (CVOs)/WOAH Delegates and national laboratory and epidemiology focal points (experts) engaged in FMD control programmes, FAO regional and national representatives, WOAH Regional and Sub-Regional representatives, and representatives from regional bodies and from the [WOAH/FAO Reference Laboratory Network for FMD](#).

West Africa belongs to FMDV Pool 5 (map [here](#)). Foot and mouth disease is endemic in all continental countries of West Africa, and four FMDV serotypes circulate: O, A, SAT 1 and SAT 2. Prior to this meeting, two FMD roadmap meetings for the West Africa region were held in 2016 and 2019.

Since the last roadmap meeting in 2019, FMD outbreaks have been reported in Nigeria, Burkina Faso, Senegal and Niger. During early 2021, samples from Nigeria identified FMD serotypes A (AFRICA/G-IV lineage) and SAT 2. Samples submitted by Niger and Burkina Faso to the WOAH/FAO Reference Laboratory Network, and analysis performed in the French Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail (ANSES), revealed circulation of SAT 2/VII/lib-12 and A/AFRICA/G-IV lineages. Recurring FMD outbreaks were also reported in Senegal, but genotyping data is not yet available.

The recent outbreak reports and laboratory submissions demonstrate there has been progress in FMD surveillance in the countries of West Africa. However, epidemiological information about FMD remains limited and gaps in virological surveillance in the region have been identified by the WOAH/FAO Reference Laboratory Network for FMD. There is an ongoing need for timely submission of appropriate samples. This is particularly important given the epidemiological connection of the West African region to North Africa, Central Africa and the Middle East through unregulated, trans-Saharan animal movements.

The current global restrictions related to the COVID-19 pandemic are challenging conventional approaches for the organisation of international events including regional FMD roadmap meetings. The FMD-WG therefore applied a virtual format for the 3rd West Africa roadmap meeting.

OBJECTIVES

The specific objectives of the meeting are were:

1. Share and review information about changes in risks related to FMDV circulation within the West African FMDV ecosystem to support recommendations for the implementation of successful control measures, including vaccination strategies.
2. Strengthen the understanding of the PCP-FMD principles and facilitate the application of the PCP-FMD Toolkit, including the PCP-FMD [Self-Assessment Tool \(SAT\)](#), to assist and guide countries in the development, implementation and monitoring of national strategies.
3. Assess and map the progress of FMD control in West African countries by reviewing the outcomes of the ongoing FMD control activities at national levels (outputs of the SAT).

4. Update the membership of the FMD Regional Advisory Group (RAG) to monitor and follow up on the regional FMD roadmap recommendations.
5. Support the development of regional epidemiology and laboratory network workplans.
6. Update the roadmap for regional FMD control in West Africa until 2027 using the principles of the PCP-FMD.
7. Identify support needed by countries from development partners to control FMD and to strengthen their surveillance systems and laboratory capacity.

OUTCOMES

The expected outcomes of the meeting were as follows:

1. Country representatives are updated and familiarised with the current regional FMD situation, viral circulation, and risk related to livestock mobility.

2. The latest updates and revisions of the PCP-FMD Guidelines, Toolkit and supporting mechanisms for PCP-FMD progression, such as the PCP-FMD Support Officer (PSO) system, are clear and familiar to the countries.
3. Information on FMD vaccination programmes is shared and recommendations are provided regarding the use of appropriate vaccines according to the most recent virological surveillance data and the implementation of appropriate vaccination strategies.
4. Membership of the FMD RAG is updated for 2021–2024.
5. Enhance the RESEPI and RESOLAB networks and revise the biennial workplans for the regional epidemiology and laboratory networks.
6. The final meeting report will be published on the GF-TADs website and shared with Members.

Session 1

Welcome and opening remarks

Dr Madhur Dhingra (GF-TADs FMD-WG Member, FAO) welcomed the participants of the 3rd West Africa roadmap meeting and moderated the session.

Dr Baba Soumare (Regional Manager, FAO Emergency Centre for Transboundary Animal Diseases [ECTAD]), on behalf of the FAO Regional Representative for Africa, started by welcoming participants and partners to the meeting. He reminded participants that FMD contributes to eroding the collective efforts to overcome food security issues and poverty in developing countries and to achieve the FAO Strategic Development Goals. The ban on trade of livestock and animal products from FMD-affected countries severely affects the economy. The FAO/WOAH Global FMD Control Strategy provides recommendations for countries to respond to FMD outbreaks and take early actions to prevent FMD from spreading to neighbouring farms and communities. However, to ensure its success, the full involvement of Veterinary Services, livestock producers, marketing actors, pharmaceutical companies and vaccine manufacturers, together with the continued support of funding institutions,

is critical. Vaccination is a powerful tool for FMD control, but there is a need to continuously monitor the circulating strains and perform vaccine matching. He pledged for more availability of quality vaccine to developing countries.

Dr Karim Tounkara, WOA Regional Representative for Africa, reminded participants that since the first meeting in Lomé, a trajectory was drawn and then revised in Dakar to achieve the vision for FMD control in West Africa. Foot and mouth disease continues to be rampant in the subregion, tending towards endemicity, and therefore demands continued attention. Members of WOA should remember that they have an obligation to send a notification of FMD events to WOA through the new WOA World Animal Health Information System (WAHIS) platform as specified in the WOA *Terrestrial Animal Health Code (Terrestrial Code)*. Such notification shall be followed by a follow-up report every week until the extinction of the outbreak, which shall be reported through a final report. This obligation is an absolute necessity in the current context of globalisation, characterised by an unprecedented



movement of commodities and people. In addition, WOAH encourages the use of the tools available to support the daily fight against FMD: the PCP-FMD, the *Terrestrial Code* and the WOAH *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals (Terrestrial Manual)*.

Dr Fabrizio Rosso, EuFMD Deputy Executive Secretary, reminded participants that the EuFMD is part of the FMD-WG and has a specific mandate in sustaining the roll-out of the Global FMD Control Strategy. The EuFMD, together with other partners within the FMD-WG, is supporting countries in progressing along the PCP-FMD, through support to the PSO system and development of tools such as the SAT and virtual training, among other efforts. Foot and mouth disease occurrence affects trade, with a consistent impact on the economy of a country, but also has a significant impact on smallholder farmers, with a negative effect on livelihoods; adopting a risk- and evidence-based approach, such as the one indicated in the PCP-FMD, is critical. The PCP-FMD is not a prescriptive approach, but rather takes into consideration priorities, resources and benefits, guiding the progressive improvement of the management of FMD risks. The reduction of disease impacts and FMD viral circulation is considered paramount.

Finally, Economic Community of West African States (ECOWAS) representative Dr Vivian N. Iwar (Executive Director, ECOWAS Regional Animal Health Centre [RAHC]), stressed that FMD remains a concern in the ECOWAS space, and the participation of West African countries in this virtual meeting clearly indicates a collective interest to ensure

that FMD prevention and control are improved. Despite encouraging efforts by ECOWAS Member States in ensuring national mass vaccination campaigns against FMD, the need for coordinated regional measures to control the disease has been highlighted. Dr Iwar reminded participants that at the ECOWAS Ministers of Livestock meeting, organised by the RAHC in Abidjan, Ivory Coast, in September 2021, ministers deliberated on the animal disease situation in the region and gave directives on the prevention and control of transboundary animal diseases (TADs) including FMD. There is, however, a need for reliable information on the epidemiological FMD situation to support FMD prevention and control measures. Given the transhumant nature of livestock in the ECOWAS Member States, the control of FMD requires a regional approach coordinated by the RAHC. Such an approach will require the mobilisation of resources for the implementation of a strategy that will support strengthening laboratory and surveillance capacities specifically, but more generally the capacity of Veterinary Services and the implementation of mass vaccination programmes against FMD.

OBJECTIVES AND ADOPTION OF THE MEETING AGENDA

Dr Néo Mapitse (WOAH Co-chair of the FMD-WG) presented the meeting objectives and the agenda. The agenda was adopted unanimously. The final agenda and list of participants of the meeting are attached as Annex 1 and Annex 2.

Session 2

Election of the Regional Advisory Group

Dr Néo Mapitse moderated the session related to the election of the RAG and started by introducing the RAG terms of reference, which identify the roles and responsibilities of its members and the modalities for the constitution of the group. At the end of the presentation, Dr Mapitse opened the nomination process for the RAG for West Africa (2021–2024) and explained the virtual election procedures. The Chief Veterinary Officers (CVOs)/WOAH Delegates of the Member States were asked to indicate their willingness to act as a member of the RAG or to nominate another CVO/WOAH Delegate. The FMD-WG Support Unit facilitated the virtual RAG elections. Participants elected the following three CVOs as voting members of the RAG for West Africa:

1. Dr Vessaly Kallo, CVO Ivory Coast (Chairperson of the RAG);
2. Dr Drissa Coulibaly, CVO Mali;
3. Dr Adama Maiga, CVO Burkina Faso.

Two other voting members of the RAG for West Africa were elected:

1. Dr Edward Fenteng Danso, Coordinator of RESEPI from Ghana;
2. Dr Emmanuel Allegye-Cudjoe, Coordinator of RESOLAB from Ghana.

Non-voting RAG members are as follows:

- The GF-TADs FMD-WG members;
- FAO and WOA regional representatives;
- The World Reference Laboratory for FMD (WRLFMD) representative.

Session 3

Support for the development and implementation of national foot and mouth disease control strategies

Two technical presentations were given during this session on the following topics.

PCP-FMD TOOLKIT AND SUPPORTING MECHANISMS FOR PCP-FMD PROGRESSION OF COUNTRIES

[M.J. Arshed/FAO member of the GF-TADs FMD-WG]

Dr Muhammad Javed Arshed started by summarising the foundations of the [Global FMD Control Strategy](#), developed by FAO and WOAHP and endorsed in 2012 by representatives of more than 100 countries and international and regional partners. The Strategy aims to reduce the global burden of FMD and the risk of re-introduction of the disease into FMD-free areas. It was highlighted that the Strategy includes three components,

namely: (i) improve global FMD control; (ii) strengthen Veterinary Services; and (iii) prevent and control other major diseases of livestock.

For the first component, the PCP-FMD has been developed since 2008, and the first edition of the [PCP-FMD guidelines](#) was proposed in 2012 during the FMD Global Conference in Bangkok. The PCP-FMD tool was revised in 2018 and is structured from PCP-FMD Stage 0 to Stage 4, distributed into two domains: (i) the GF-TADs domain, from PCP-FMD Stages 0 to 3; and (ii) the WOAHP domain, from PCP-FMD Stage 4 onwards. The PCP-FMD supports endemic countries until WOAHP official recognition of freedom, so that now, the gateway to exit the PCP-FMD is the WOAHP endorsement of the Official Control Programme (OCP) aiming at eradicating FMD (either at a zonal or countrywide level). The specific



focus, outcome indicator and key outcomes assigned with each of the PCP-FMD stages and the alignment between PCP-FMD stages and the expected level of critical competencies outlined in the WOAH tool for the evaluation of performance of Veterinary Services (PVS) was elaborated with examples.

For the countries to progress along the PCP-FMD and have their FMD control plans/programmes (Risk-Assessment Plan [RAP], Risk-Based Strategic Plan [RBSP], OCP) recognised, the procedures for reviewing the plans/programme include: (i) the country submits plan/programme to the GF-TADS FMD-WG; (ii) the FMD-WG reviews the document and provides technical feedback to the country; (iii) the country revises the document in light of the FMD-WG feedback provided and re-submits the revised version to the FMD-WG; (iv) the FMD-WG reviews the document and, if accepted, seeks the country's consent to share the document with the RAG (ultimate authority to accept or reject the plan/programme); (v) the document proposed to the RAG enables (or not) the country to progress to the relevant PCP-FMD stage.

A number of resources, in multiple languages, are available to countries to design and implement FMD control plans. These resources are available on the [GF-TADS](#) and EuFMD websites and include (i) templates for country plans (RAP/RBSP/OCP); (ii) PCP-FMD guidelines; (iii) the PCP-FMD SAT; (iv) FMD vaccination and post-vaccination monitoring guidelines; and (v) meeting reports, including roadmap meetings. The countries were strongly encouraged to utilise these resources to design and implement FMD control plans.

A number of new resources are under development to support countries in designing and implementing FMD control plans effectively. These include: (i) an e-learning open access course series on 'Introduction to the RAP, the RBSP and the OCP'; (ii) surveillance plan guidelines and socio-economic guidelines; (iii) a PCP-FMD tool for review and communication (TRAC); and (iv) online dashboards displaying the PCP-FMD stages and allowing the visualisation of FMD surveillance data of all the roadmap regions.

Finally, the FMD-WG is promoting the PSO system for countries in PCP-FMD Stages 0 to 3. Support Officers are individual experts in the PCP-FMD and TADs control who

provide guidance to countries in drafting, implementing and monitoring their national FMD control plans. The West African countries were encouraged to take advantage of this support mechanism.

INTRODUCTION TO THE PCP-FMD SELF-ASSESSMENT TOOL

[G. Ferrari/member of the EuFMD Standing Technical Committee (STC)]

Dr Giancarlo Ferrari introduced the PCP-FMD Self-Assessment Tool (SAT), a spreadsheet-based questionnaire developed by EuFMD and WOAH to assist FMD endemic countries in PCP-FMD Stages 0 to 3 in assessing their progress in the PCP-FMD.

The aim of the presentation was to familiarise participants with the structure of the SAT, which, in contrast to the previous paper-based questionnaire, has been developed on an electronic platform. The questions proposed to the users are grouped into four main components (and associated categories): Livestock Sector and Stakeholders; Surveillance and Diagnostic; Veterinary Services; and Prevention, Control and Evaluation. The presentation illustrated how to navigate through the questionnaire and how, at completion, three different outputs will be automatically produced: Output 1 will indicate the PCP stage at which the country most likely is; Output 2 will display the list of completed and pending activities; and Output 3 will display the full list of pending activities by component and by priority.

It was highlighted during the presentation that the main differences with respect to the previous paper-based version are: (i) countries do not need to make any precise advanced guess as to where they consider they are in the PCP; (ii) there is consistency between the structure of the tool and the template proposed on how to formulate any of the plans foreseen along the Pathway; (iii) the SAT can capture completed activities of higher stages of the PCP (which can further assist in establishing priorities); (iv) the completed SAT can be exported in CSV format to feed a platform, namely PCP-TRAC (the PCP-FMD tool for review and communication), which, although not yet operational, is intended to facilitate remote management by the RAG.

Session 4

National strategies and country reports

On days 1, 2 and 3, 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 ten-minute time slot, followed by a five-minute 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 Annex 3.

MEETINGS WITH COUNTRIES

At the end of days 1, 2 and 3, meetings with countries were organised to review their FMD situation, control activities and PCP-FMD stage (based on the SAT, presentation outcomes and control plan) and to discuss the way forward.

The two interview panels (Annex 1), which encompassed the non-voting members of the RAG, met with representatives of 14 West African Members: Benin, Burkina Faso, Cabo Verde, Ivory Coast, Ghana, Guinea, Guinea-Bissau, Mali, Niger, Nigeria, Senegal, Sierra Leone, Gambia and Togo. Outcomes of the country interviews are summarised in Annex 3.

Session 5

Foot and mouth disease virus situation at global and regional levels and implications

OVERVIEW OF GLOBAL AND REGIONAL FMD SITUATION AND VACCINE RECOMMENDATIONS

[D. King/Pirbright Institute on behalf of WRLFMD, ANSES and National Veterinary Research Institute, Vom, Nigeria (NVRI VOM)]

An overview of the regional FMD situation and vaccine recommendations was provided by Dr Donald King (WRLFMD). This presentation summarised data collated from the WOA/FAO FMD Laboratory Network (www.foot-and-mouth.org) and included contributions from NVRI VOM (Nigeria), ANSES (France) and Botswana Vaccine Institute (BVI). Since the last regional roadmap meeting in 2019 (Dakar, Senegal), results from 192 clinical samples collected from West African countries have been reported by Network laboratories (comprising 82 samples for 2019 and 110 samples for 2020). Based on these data, we know that viruses from six different viral topotypes within four FMD serotypes (O, A, SAT 1 and SAT 2) circulate in the region (see Table I). Three of these FMDV lineages (O/EA-3, A/AFRICA/G-IV and SAT 2/VII) are also present in East Africa, highlighting the connectivity between East and West Africa, and two of these lineages have spread recently beyond West Africa across the Sahara to cause outbreaks in the Maghreb (A/AFRICA/G-IV and O/EA-3 in 2017 and 2018–2019, respectively).

WOAH/FAO Reference Laboratories recommend that Veterinary Services ensure that the vaccines used are appropriate for the viruses circulating in the region and are in line with WOA standards. Vaccine-matching results for FMD vaccines produced by international suppliers (Boehringer-Ingelheim, MSD and Biogenesis-Bago) were summarised in the presentation (see: <https://www.wrlfmd.org/ref-lab-reports>):

- For serotype O, data indicates that O/Manisa or O/PanAsia-2 (or equivalent) vaccine strains match most O/EA-3 isolates. In addition, the O-Campos vaccine has been recently added to routine testing undertaken at WRLFMD, where two O/EA-3 field isolates were matched using the *in vitro* test. Only

a small number of O/WA isolates (n=5) have been tested where O/PanAsia-2 (or equivalent) matches most field isolates.

- For serotype A, vaccine-matching data is less encouraging, and of five FMD vaccine strains tested, the best vaccine-matching data is for the A/Eritrea-98 vaccine with 4/11 isolates matched.
- For SAT 1/X topotype: only limited data is available that indicates a poor match to SAT 1/RHO/78.
- For SAT 2/VII topotype: SAT 2/Eritrea appears to be better matched than SAT 2/ZIM-83 (including two isolates collected from Nigeria in 2020).

A range of FMD vaccines from other commercial suppliers (such as KEVEVAPI, ME-VAC and BVI) are used in the region although there is very little vaccine-matching data available to support the use of these vaccines for West African field isolates. As an alternative to vaccine matching, the presentation highlighted the potential role of heterologous serology testing of the final formulated product using regionally relevant FMDV antigens – similar to the approach adopted recently for East Africa (<https://www.wrlfmd.org/node/2096/>).

In summary, the presentation highlighted gaps in our current knowledge regarding the epidemiology of FMDV lineages that circulate in West Africa, as well as a lack of empirical evidence for the selection and use of vaccines in the region. Therefore, it is recommended that countries:

- Increase FMD surveillance, sampling and shipment of samples to reference laboratories to identify circulating strains and for vaccine-matching analyses. Participants were reminded that WRLFMD and other laboratories in the WOA/FAO Network can support the submission of samples; please contact donald.king@pirbright.ac.uk for further information.
- Request that vaccine manufacturers provide evidence to confirm the efficacy of their products against the circulating FMDV lineages in the target host species (either as individual monovalent components or after formulation of a multivalent product sold on the market).

TABLE I: Distribution of FMDV lineages in West African countries

Coloured boxes denote samples that have been characterised within each of these six FMDV lineages (dates define most recent FMD outbreak reported)

Country	0		A/AFRICA		SAT 1	SAT 2
	WA	EA-3*	G-IV*	G-VI	X	VII*
Benin	2010			2010		
Burkina Faso		2018				2020
Cabo Verde						
Ivory Coast		2018				
Gambia		2018				
Ghana	2016	2018	2016			2018
Guinea		2018				
Guinea-Bissau	2016					
Liberia						
Mali	2006	2018	2006	2006		2014
Mauritania		2018		2017		2014
Niger	2015	2016	2019			2019
Nigeria	2016	2016	2017		2016	2020
Senegal	2006	2018				2009
Sierra Leone		2018				
Togo	2005		2005			

* FMDVs with similar distribution in East and West Africa

UPDATE ON THE REGIONAL ASSESSMENT OF NATIONAL LABORATORIES IN WEST AND CENTRAL AFRICA

[M. Niang/FAO Regional Office for Africa (RAF)]

Dr Mamadou Niang (FAO RAF), while updating on the regional assessment of national laboratories in West and Central Africa (WCA), reported that the FAO ECTAD WCA initiated this study to assess the current diagnostic capacities, in terms of human resources and infrastructure, of national veterinary laboratories in WCA. The aim is to update the current diagnostic capacity of WCA national veterinary laboratories for animal diseases in order to raise awareness for their further enhancement.

The major elements that were considered included the availability of functioning essential equipment; the sustainable supply of necessary diagnostic kits, reagents and consumables for TAD laboratory diagnosis; the status of the essential logistics; the human resource capacity in terms of staff positions and competencies; and the level of implementation of the quality management system and quality assurance/biosafety and biosecurity measures in the laboratory and the existing laboratory networks.

The study used a qualitative approach guided by the results of FAO's Laboratory Mapping Tool and previous self-assessments of critical laboratory-related competencies. Additional information was gathered through the review of recently published articles on the

FAO website on the support provided by FAO ECTAD WCA under the United States Agency for International Development-funded Global Health Security Agenda programme, as well as through monthly laboratory activity reports from all the countries concerned.

This assessment considered all West African countries except Cabo Verde. Two Central African countries (Cameroon and the Democratic Republic of the Congo), which fall under the mandate of FAO ECTAD and are also beneficiaries of the Global Health Security Agenda programme, were included.

Results revealed that all national laboratories have the capacity to test for the main animal diseases prevalent in their countries, but there is significant variation between countries in terms of the diagnostic techniques applied. Overall, only 3 out of 16 laboratories perform viral isolation and only 5 laboratories can efficiently carry out bacterial culturing. However, all but two laboratories routinely use immune-serological and molecular-biological techniques for animal disease diagnosis.

The main concerns in all countries included challenges related to the maintenance and calibration of laboratory equipment and instruments, the general training of laboratory staff, and the implementation of effective quality assurance/biosafety and biosecurity measures, as well as inadequate laboratory facilities. In addition, the unsustainable supply of diagnostic reagents and consumables was identified as a serious challenge to the efficient laboratory diagnostic activities in all countries.

Thus, some recommendations have been formulated with the overall objective of improving the capability of WCA national laboratories to perform efficient laboratory diagnosis of important animal diseases, including zoonotic diseases, as provided in the Code of Good Laboratory Practices.

UNDERSTANDING ANIMAL MOBILITY IN WEST AFRICA AND IMPLICATIONS FOR TAD SPREAD AND CONTROL

[I. Seck/FAO RAF]

Dr Ismaila Seck gave a comprehensive talk on animal mobility in West Africa, the regional context and specificities, animal mobility surveys, and constraints and challenges of animal mobility in the region. It was highlighted that pastoralism and transhumance constitute an adaptive strategy to seasonal variations of biomass and water resources in the region and involve 70% to 90% of cattle and 30% to 40% of small ruminants. Specificities of the region were described, including lack of an animal identification/tracing system and data on mobility, lack of harmonised surveillance and a health

certification system, limited capacity of animal health services, surveillance at borders, risk of introduction and spread of TADs by moving herds, insecurity, lack of human resources and lack of effective coordination of partner actions. Seasonal transhumance (water, pasture), trade (fattening and supplying of coastal markets), displacement due to conflicts, insecurity, fleeing from natural disasters (drought, disease), socio-cultural elements (dowry, festivals, etc.), sustainable use of drylands (pressure on grasslands, dry matters and crop residues), agropastoral complementarity, and incomes in countries crossed are the rationales of animal mobility in the region. The following mobility patterns were explained:

Transhumance routes

- Western: along Atlantic Coast
- Central: from Mauritania and Burkina Faso to Ivory Coast, Ghana, Togo
- Eastern: Niger and Burkina Faso to Nigeria and Benin

Historical commercial routes

- Western: Mauritania and Mali to Senegal, Gambia, Guinea
- Central: Mali and Burkina Faso to Nigeria through Ivory Coast and Togo
- Oriental and Southern: Niger to Nigeria

Other/Economic Community of Central African States commercial routes:

- Central African Republic and Chad to Nigeria and Cameroon
- Central African Republic to Democratic Republic of the Congo and Republic of the Congo

It was indicated that to conduct animal mobility surveys in ECOWAS Member States, a protocol and questionnaire was developed and endorsed by 15 ECOWAS Member States in Abidjan in 2019. The online survey is now ongoing in the region at border points. During the preliminary survey in Guinea and Sierra Leone, 1,164 movements and over 292 links were recorded for a total of 2.8 million animals exchanged.

The mapping risks, constraints and challenges associated with animal mobility were highlighted. In conclusion, it was emphasised that livestock mobility in the region plays critical roles. The main drivers of animal mobility include climate, seasons, environment and socio-economic aspects (supply–demand dynamics). The wide mobility networks spanning several countries can increase the risk of occurrence and spread of animal diseases. A good understanding of the value chain, including animal mobility (commercial and transhumance routes), is the key to risk assessment and risk-based surveillance considering limited resources in West Africa. A holistic approach to risk assessment at the regional level was recommended to understand drivers of disease spread and to ensure safe and sustainable mobile livestock production systems.

Session 6

Epidemiology and laboratory regional networks workplans 2021–2022

Dr Fabrizio Rosso (EuFMD and member of the FMD-WG) introduced the session and presented the breakout group tasks. While elaborating the role of epidemiology (Epi) and laboratory (Lab) networks, he reminded participants that each FMD roadmap is supported by these networks and all countries in the region are members of the networks. In West Africa, these networks correspond to the existing networks under ECOWAS RAHC and the network leaders are members of the RAG. Each network also develops a workplan to support FMD control according to the needs of the region. The key issues of RESOLAB and RESEPI, identified during the second FMD roadmap meeting in Senegal (September 2019), were also presented to discuss the progress made so far and challenges faced.

After the presentation, the members of RESEPI and RESOLAB were placed in parallel breakout rooms, and discussions were held on the update of the respective workplans for 2021–2022. The FMD-WG members and FAO/WOAH experts facilitated the discussions in the

breakout rooms. Names of national Epi and Lab points of contact are summarised in Annex 2.

Summaries of the discussions were presented by the newly elected networks' leaders in Session 6 (continued) on Day 3.

The session was chaired by the leaders of RESEPI and RESOLAB networks.

RESOLAB WORKPLAN 2021–2022

[E. Allegye-Cudjoe (Ghana)/RESOLAB Coordinator]

The RESOLAB Coordinator, Dr Emmanuel Allegye-Cudjoe (Ghana), made a presentation on the RESOLAB workplan for 2021–2022, highlighting the successes, challenges, main gaps and possible solutions discussed during the breakout group session. The workplan 2021–2022 was presented, including timeline, roles and responsibilities, and level of priority for each action item.

Gaps and possible solutions were identified, as summarised in Table II.

TABLE II: Gaps and possible solutions related to the RESOLAB workplan 2021–2022

Activity	Gaps	Possible solution
Coordination and communication	Lack of communication within RESOLAB national focal points and with the coordinator High turnover of national focal points for labs	Nomination of 2 focal points in each country Have a sustainable system for focal points (a bit like WOAHA) Revitalise the communication within and between subnetworks (report of activities, monthly reports) Provide resources to the focal points and coordinator to effectively work, and report of his/her activities Develop website to improve communication and information sharing at regional level (NB: an FMD surveillance dashboard has been developed by EuFMD and the Pirbright Institute; maybe transfer this idea at the regional level)
Timely diagnosis and sample transportation	No or limited trained staff to attend FMD outbreaks or collect and ship samples to lab Limited availability of material to collect and transport samples to national/regional labs/Ref Labs Limited lab diagnostic capacity for FMDV serotyping at national and regional level	Capacity building of field and lab staff through hands-on trainings and provision of essential reagents/kits Training should be cascaded at national lab Strengthening the role of veterinary paraprofessionals (VPPs)/community animal health workers (CAHWs) Response to FMD outbreak by providing quality vaccine for emergency vaccination

The RESOLAB Coordinator concluded with suggestions for the workplan 2021–2022 and prioritised activities as summarised in Table III.

TABLE III: RESOLAB workplan 2021–2022 with prioritisation of activities

Workplan 2021–2022	Timeline, roles and responsibilities	Notes	Priority
Seek synergies with other TADs	ECOWAS RAHC, AU-IBAR, Ref centres, FAO, national stakeholders		High (First)
Laboratories to develop standard operating procedures/factsheets to improve sampling	ECOWAS RAHC, FAO regional lab experts	Ongoing – Towards uniform guidance FAO EMPRES-AH is developing standard guidance, which then could be tailored to the country needs	High
Training for lab staff, and cascade the training to the field officer	FAO ECTAD, WRLFMD/ANSES/EuFMD, Virtual Learning Centres (VLCs)	E-learning course for FMD (in English and French) to provide background training in FMD diagnostic methods can be provided by WRLFMD/ANSES/EuFMD	High
FAO/WOAH Ref Lab network to issue guidelines on sample shipping	FAO EMPRES AU-PANVAC VLC	Train facilitators at the national level for them to cascade training (virtual and hands-on)	High
Establish a list of FMD laboratory focal points and trained personnel for international shipment of infectious substances	Leader: ECOWAS RAHC with other partners	WRLFMD: materials are already available to explain how samples should be prepared for shipment	High (First)
RESOLAB to establish a website to improve communication and dissemination of information	Leader: ECOWAS RAHC with other partners	EMPRES-I database (with different user access) and WAHIS or website	High
Regional organisations and country leaders should be included in RESOLAB discussions (AU-IBAR, ECOWAS, CVOs)	Leader: ECOWAS RAHC		High
Labs need support for reagents and kits	FAO Lab Unit (in coordination with the regions), EuFMD	Trying to establish long-term agreement with suppliers Resource mobilisation with national projects (PIMELAN, PADELM, etc.)	High

RESEPI WORKPLAN 2021–2022

[E. Fenteng Danso (Ghana)/RESEPI Coordinator]

The RESEPI Coordinator, Dr Edward Fenteng Danso (Ghana), made a presentation on the RESEPI workplan for 2021–2022, highlighting the successes, challenges, main gaps and possible solutions discussed during the breakout

group session. The workplan 2021–2022 was presented, including timeline, roles and responsibilities, and level of priority for each action item.

The RESEPI Coordinator concluded with suggestions for the workplan 2021–2022 and prioritised activities summarised in Tables IV and V.

TABLE IV: Successes, challenges and possible solutions related to the RESEPI workplan 2021–2022

What are the successes?	What are the challenges? Possible solutions?	Possible solution
RESEPI focal points for FMD identified and trained partially online on FMD outbreak investigation, sample collection and diagnosis	Challenge: Inadequate disease outbreak information sharing among ECOWAS Member States Solution: Support RAHC to create regional platform for information sharing on FMD outbreaks and other TADs in the region	Gaps: <ul style="list-style-type: none"> • No formal coordinating structure for the network in the region • No hands-on face-to-face training organised Solution: <ul style="list-style-type: none"> • Establish a coordinating structure for FMD subnetwork in the region • Organise face-to-face, field trainings
Subnetwork for FMD in West and Central Africa exists	Challenge: Cross-border surveillance non-existent between neighbouring countries within the subregion Solution: Support Members to develop memorandum of understanding (MoU) for cross-border surveillance for all neighbouring countries within the subregion	Gap: Frequent change in RESEPI focal points Solution: CVOs should be advocated and be informed about the effect of changing focal points for every training or activity
WhatsApp group exists for subnetworks for FMD and RESEPI network	Challenge: Inadequate funding for disease surveillance and control within the region Solution: Members should seek funding/ technical support from development partners to strengthen disease surveillance within countries and at the cross-borders	

TABLE V: RESEPI workplan 2021–2022 with prioritisation of activities

Workplan 2021–2022	Roles & responsibilities Timeline	Notes	Priority
Legal and admin support <ul style="list-style-type: none"> Development of RAP MoU between relevant countries and cross-border bi-/multilateral meetings 	RAHC and partners 2022	Support of PSOs to develop RAP and countries to submit RAP to FMD-WG during first half of 2022 National Veterinary Services should endeavour to develop MoU between countries and cross-border bi-/multilateral meetings	High High
Design and implementation of surveillance programs	Member States 2022	Ongoing	Medium
Training on Risk Assessment	RAHC and partner 2022	One was conducted in Niger but there is a need for second Risk Assessment training	Medium
Training and support on sample collection and shipment	FAO and other partners 2022	Organised trainings on several occasions; however, more support needed to conduct hands-on field trainings at country level	Medium
Mapping of movement patterns at national and transboundary level Country and regional outlooks Expand and involve other stakeholders	RAHC, FAO and other partners 2022	Risk hotspot identified by some countries in the region. Other countries should be supported to map and identified their risk spots. These risk spots should be developed into risk map for using QGIS for ECOWAS	High
Wildlife disease surveys and determining role of wildlife in FMD epidemiology	RAHC, FAO and other partners 2022	Establish a consultative framework with national wildlife authorities (WOAH focal point on wildlife) to improve their contribution to FMD disease reporting and surveillance	High
Establish disease reporting systems	FAO and other partners 2022	Even though all countries have their own disease reporting systems, there is a need to support countries with a harmonised disease reporting system for all countries in the region	Medium
Development of early warning systems (EWS) for rapid response	RAHC, FAO and other partners 2022	Regional training on EWS and support to countries to develop and implement EWS	High
Regional database for sharing information on FMD	RAHC and FAO 2022	Ongoing	High
Training <ul style="list-style-type: none"> Training of VPPs on FMD detection and sample collection Training on socio-economic impact studies 	RAHC, FAO and other partners 2022	RESEPI focal points have been partially trained online Detection and sample collection by FAO but no step-down training for VPPs on FMD No regional training on socio-economic impact studies	High

Session 7

Vaccines and vaccination programmes

REPORT ON VACCINES AND VACCINATION PROGRAMMES ACROSS THE REGION (ONLINE SURVEY)

[M.J. Arshed/FAO member of the FMD-WG]

Eleven countries, including Ghana, Niger, Nigeria, Sierra Leone, Burkina Faso, Guinea, Guinea-Bissau, Mali, Ivory Coast, Senegal and Gambia participated in the FMD vaccination survey, with A, O, SAT 1 and SAT 2 serotypes circulating. See Annex 4 for the full summary report of the FMD vaccination survey.

VACCINATION AND POST-VACCINATION MONITORING AND EVALUATION OF VACCINATION PROGRAMMES

[K. van Maanen/EuFMD]

Dr Kees van Maanen, Animal Health Officer (EuFMD), elaborated FMD vaccination and post-vaccination monitoring guidelines published jointly by FAO and WOA. Vaccines are used extensively to control FMD and approximately 2.3 billion doses are used annually worldwide (mostly in South America and China). Foot and mouth disease vaccine was used as part of the European elimination campaign (stopped in 1992) and has been

extensively used in South America, where the disease appears well controlled. There are at least 56 producers of FMD vaccine worldwide.

The attributes of FMD vaccines were discussed through an explanation of the process of FMD vaccine production, antigenic diversity, nonstructural protein (NSP) purification, innocuity, potency/efficacy testing, calculation of 50% protective dose, vaccine strain selection, vaccine matching steps and vaccine challenges. It was advised that: (i) the vaccine should be purchased from reputable producers that adhere to prescribed standards, such as those in the WOA *Terrestrial Manual*; (ii) before purchasing FMD vaccine from a manufacturer, a dossier of information on its product should be requested to help select the most appropriate supplier and vaccine; (iii) one should seek an independent evaluation of the manufacturer's claims or test it oneself; and (iv) where FMD vaccination is part of a government-regulated programme, the vaccine may be licensed and its use regulated by the relevant national authorities. The methodologies to monitor implementation of the vaccination programme and evaluate immune response were explained through examples. Finally, reasons for vaccination failure related to animals, vaccines, vaccination and the campaign were elucidated.

Session 8

Regional Advisory Group meeting

The conclusions of each of the country interviews were presented by the interview panels, in closed session, to the voting members of the RAG, for voting on the acceptance of PCP-FMD stages for countries. The final version of the roadmap for 2021 is included as Figure 1 on page 19 of this report.

Session 9

Recommendations

Dr Brice Lafia (ECOWAS RAHC) chaired while Dr Madhur Dhingra (FMD-WG member) moderated sessions 9 and 10.

Taking into account all the information received during the meeting, a set of recommendations was presented by Dr Néó Mapiitse on behalf of the West Africa RAG Chair

and discussion was held among participants on the best way to progress along the PCP-FMD. The participants were then given a two-week timeframe to comment the document validated in session.

The final version of the meeting recommendations is provided in Annex 5.

Session 10

Roadmap update and conclusion

PRESENTATION OF THE ROADMAP BASED ON THE REGIONAL ADVISORY GROUP ASSESSMENT

The conclusions of the discussions held in Session 7 were summarised to the participants.

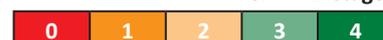
The final version of the roadmap for 2021, validated with each of the participating countries and approved during the meeting, is shown below (Fig. 1).

Dr Madhur Dhingra, while closing the meeting on behalf of the GF-TADs FMD-WG, thanked all for their active participation during the four-day virtual meeting.

FIGURE 1: 3rd GF-TADs FMD Roadmap Meeting for West Africa, presentation of provisional roadmap for 2021–2026

	Validated stages						Provisional stages (not validated)				
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Benin	1*	1*	1*	1*	1*	1*	1	2	2	2	3
Burkina Faso	1*	1*	1*	1*	1*	1	2	2	2	2	3
Cabo Verde	0	0	0	0	0	0					
Ivory Coast	1*	1*	1*	1*	1*	1*	1	2	3	3	3
Gambia	1	1	1	1*	1*	1*	1	1	2	2	2
Ghana	0	0	0	1*	1*	1*	2	2	2	3	3
Guinea	1*	1*	1*	1*	1*	1	1	1	2	2	3
Guinea-Bissau	1*	1*	1*	1*	1*	1*	1	2	2	2	3
Liberia ¹	0	0	0	1*	1*		1	1	2	2	
Mali	1	1	1	1*	1*	1*	1	2	2	3	3
Mauritania ¹				0	0						
Niger	1*	1*	1*	1*	1*	1*	2	2	3	3	4
Nigeria	1	1	1	1*	1*	1*	2	2	3	3	3
Senegal	1	1	1	1*	1*	1*	2	2	2	3	3
Sierra Leone	0	0	0	1*	1*	1*	1	2	2	2	3
Togo	1*	1*	1*	1*	1*	1*	1	1	2	2	3

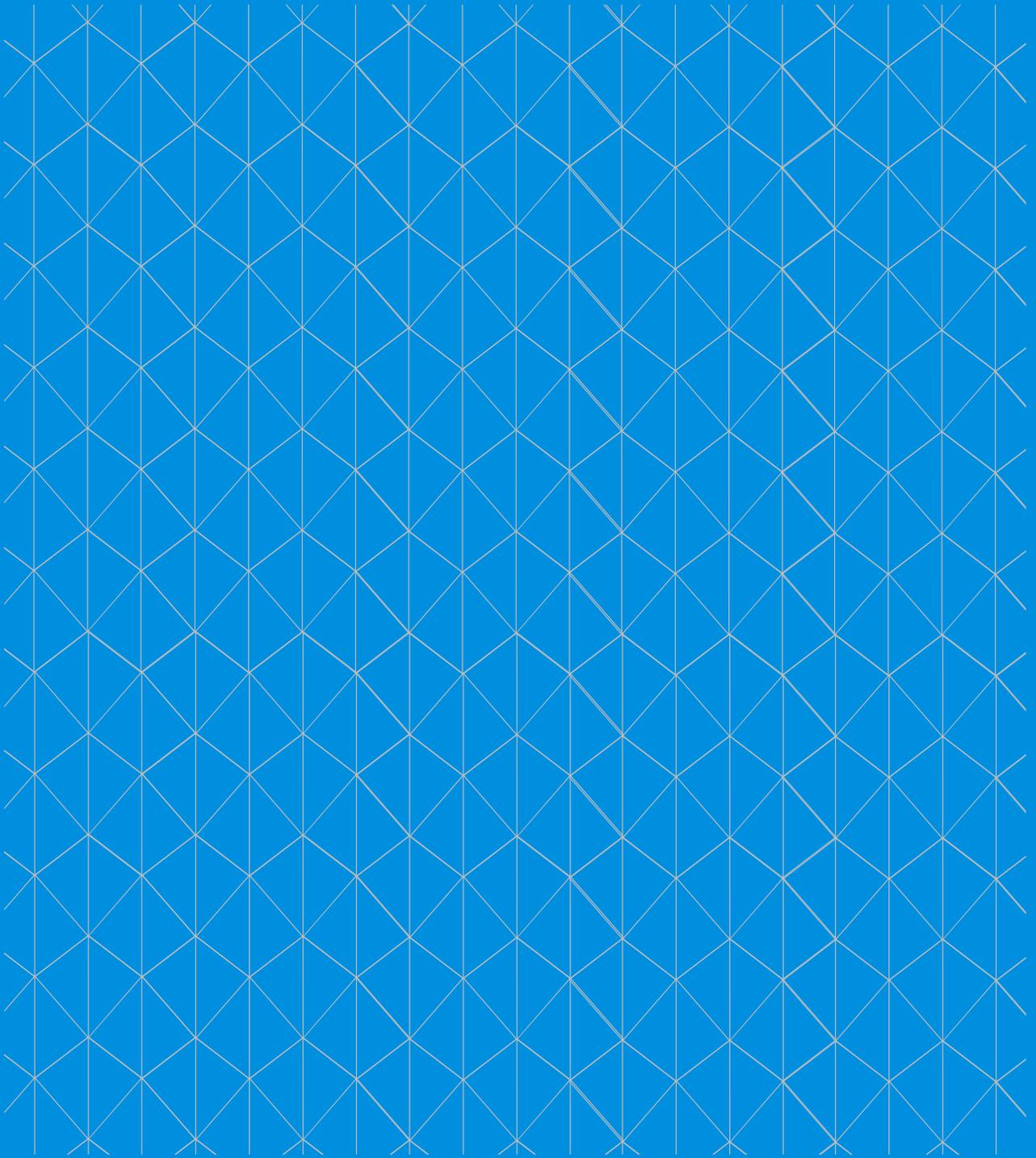
Legend:
PCP-FMD stages



* Provisional status given to the country (country has six months to provide additional information including control plan/programme; if not, it will be downgraded to the previous stage).

¹ Country did not attend the virtual meeting in 2021.

Annexes



Annex 1

Agenda (virtual meeting and country interviews)

Time (GMT)	Session Title	Speaker	Chair/Facilitators
DAY 1: MONDAY, 8 NOVEMBER 2021			
09:00 –08:30	Session 1 – Opening and Meeting Agenda		<i>Moderator:</i> Madhur Dhingra FAO member, FMD-WG
	- Opening remarks	Baba Soumare (FAO RAF) Karim Toukara (WOAH, founded as OIE, Africa) Fabrizio Rosso (EuFMD) Brice Lafia (Executive Director, ECOWAS RAHC)	
	- Objectives and adoption of the meeting agenda	Néo Mapitse WOAH Co-chair, FMD-WG	
09:00–09:20	Session 2 – Update the membership of the elected FMD Regional Advisory Group (RAG) for West Africa <i>(Meeting objective 4)</i>		<i>Moderator:</i> Néo Mapitse WOAH Co-chair, FMD-WG
	- Short introduction to the RAG - (terms of reference and achievement of the current RAG) - Call for nominations to the RAG	Abakeh Patrick RAG Chair (CVO Ghana) Néo Mapitse (WOAH Co-chair, FMD-WG)	
10:00–09:20	Session 3 – Support for the development and implementation of national FMD control strategies (15 minutes for each presentation, 5 minutes for Q&A) <i>(Meeting objective 1)</i>		<i>Moderator:</i> Baba Soumare (FAO RAF)
	- PCP-FMD Toolkit and supporting mechanisms for PCP-FMD progression of countries	Muhammad Javed Arshed (FAO Member, FMD-WG)	
	- Introduction to the PCP-FMD Self-Assessment Tool (SAT)	Giancarlo Ferrari (EuFMD STC member)	
	- Q&A (2–3 questions to the speakers)	All	
10:00–10:15	Session 2 (continued) - Update the membership of the elected FMD RAG for West Africa		<i>Moderator:</i> Néo Mapitse WOAH Co-chair, FMD-WG
	- RAG election (2021–2024)	Country CVOs and FMD-WG Co-chairs	
Virtual coffee break (10:15–10:30 for the CVOs, 10:00–10:30 for the other colleagues)			
10:30–11:30	Session 4 – National strategies and country reports <i>(Meeting objective 3)</i>		<i>Chair:</i> CVO Ivory Coast (RAG Chairperson) <i>Facilitator:</i> Fabrizio Rosso EuFMD member, FMD-WG
	- Live presentation and Q&A (10 minutes per country)	<ul style="list-style-type: none"> • Ghana • Burkina Faso • Cabo Verde • Benin • Guinea-Bissau • Guinea 	
END OF PLENARY SESSION DAY 1			
12:00–13:30	Session 4 (continued) <i>(Meeting objective 3)</i> Closed sessions Meeting with countries to (i) review their FMD situation, control activities and PCP-FMD stage (based on the SAT, presentation outcomes and control plan); (ii) discuss way forward		WOAH/FAO/EuFMD 2 panels 30 min. per country <ul style="list-style-type: none"> • Burkina Faso (1) • Benin (1*) • Guinea (1*)
		<ul style="list-style-type: none"> • Ghana (1*) • Cabo Verde (0) • Guinea-Bissau (1*) 	

Time (GMT)	Session Title	Speaker	Chair/Facilitators
DAY 2: TUESDAY, 9 NOVEMBER 2021			
08:30–09:00	Session 4 (continued) - RAG closed session (Meeting objective 3)	RAG & GF-TADs FMD-WG 10 min. per country	
09:00–10:00	Session 5 – FMD virus situation at global and regional levels and implications (Meeting objective 2) (10 minutes for each presentation followed by 10 min. Q&A)		<i>Chair:</i> CVO Ivory Coast (RAG Chairperson)
	- Overview of global and regional FMD situation and vaccine recommendations	WRLFMD/ANSES/NVRI VOM	<i>Facilitator:</i> Moetapele Letshwenyo WOAH member, FMD-WG
	- Update on the regional assessment of national labs in WCA	Mamadou Niang (FAO RAF)	
	- Understanding animal mobility in West Africa and implications for TAD spread and control	Ismaila Seck (FAO RAF)	
	- Q&A moderated session	All participants	
10:00–10:30	Session 4 (continued) – National strategies and country reports (Meeting objective 3)		<i>Chair:</i> CVO Mali (RAG member)
	- Live presentation and Q&A (10 minutes per country)	<ul style="list-style-type: none"> • Gambia • Ivory Coast • Nigeria 	<i>Facilitator:</i> Baba Soumare (FAO RAF)
Virtual coffee break (10:30–10:45)			
10:45–11:15	Session 4 (continued) – National strategies and country reports (Meeting objective 3)		<i>Chair:</i> CVO Burkina Faso (RAG member)
	- Live presentation and Q&A (10 minutes per country)	<ul style="list-style-type: none"> • Liberia • Senegal • Niger 	<i>Facilitator:</i> Bolortuya Purevsuren WOAH member, FMD-WG
11:15–12:15	Session 6 Epidemiology and Laboratory network workplan 2021–2022 (Meeting objective 5)		<i>Chair:</i> RESEPI and RESOLAB coordinators
	- Introduction to breakout rooms - Two breakout groups	Fabrizio Rosso (EuFMD member, FMD-WG) RESEPI & RESOLAB [RESEPI & RESOLAB national focal points and network coordinators: RESEPI: Edward Fenteng Danso (Ghana) RESOLAB: Emmanuel Allegye Cudjoe (Ghana)]	<i>WG facilitator:</i> FMD-WG Co-chairs FAO/WOAH Regional representatives, FMD-WG members, PSOs
END OF DAY 2 Plenary session			
12:45–13:45	Session 4 (continued) (Meeting objective 3) Closed sessions Meeting with countries to (i) review their FMD situation, control activities and PCP-FMD stage (based on the SAT, presentation outcomes and control plan); (ii) discuss the way forward	WOAH/FAO/EuFMD 2 panels 30 min. per country	
		<ul style="list-style-type: none"> • Gambia (1*) • Liberia (1*) • Nigeria (1*) 	<ul style="list-style-type: none"> • Ivory Coast (1*) • Senegal (1*) • Niger (1*)
END OF DAY 2			

Time (GMT)	Session Title	Speaker	Chair/Facilitators
DAY 3: WEDNESDAY, 10 NOVEMBER 2021			
08:30–09:00	Session 4 (continued) – RAG closed session (Meeting objective 3)	RAG & GF-TADS FMD-WG 10 min. per country	
09:00–10:00	Session 7 – Vaccines and vaccination programmes (Meeting objective 2)		<i>Chair:</i> CVO Ivory Coast (RAG Chairperson) <i>WG facilitator:</i> Madhur Dhingra FAO member, FMD-WG
	- Results of the FMD vaccination survey	Muhammad Javed Arshed (FAO FMD-WG member)	
	- Vaccination and post-vaccination monitoring and evaluation of vaccination programmes	Kees van Maanen (EuFMD)	
	- Q&A moderated session	All participants	
10:00–10:20	Session 4 (continued) – National strategies and country reports (Meeting objective 3)		<i>Chair:</i> RESEPI Coordinator (Ghana) <i>Facilitator:</i> Karim Tounkara (WOAH Africa)
	- Live presentation and Q&A (10 minutes per country)	<ul style="list-style-type: none"> • Sierra Leone • Mauritania 	
Virtual coffee break (10:20–10:35)			
10:35–10:55	Session 4 (continued) – National strategies and country reports (Meeting objective 3)		<i>Chair:</i> RESOLAB Coordinator <i>Facilitator:</i> Karim Tounkara (WOAH Africa)
	- Live presentation and Q&A (10 minutes per country)	<ul style="list-style-type: none"> • Mali • Togo 	
10:55–12:00	Session 6 (continued) – Epi and Lab network workplan 2021–2022 (Meeting objective 5)		<i>Chair:</i> CVO Ivory Coast (RAG Chairperson) <i>Facilitator:</i> Mamadou Niang (FAO RAF)/Joseph Awuni (FAO RAF)
	- Presentation of the discussion in the breakout rooms	Epi and Lab network coordinators	
	- Roundtable discussion on reports from breakout groups, and provision of recommendations for the regional networks workplan	All participants	
END OF DAY 3 Plenary session			
12:30–13:30	Session 4 (continued) (Meeting objective 3) Closed sessions Meeting with countries to (i) review their FMD situation, control activities and PCP-FMD stage (based on the SAT, presentation outcomes and control plan); (ii) discuss way forward	WOAH/FAO/EuFMD 2 panels 30 min. per country	<ul style="list-style-type: none"> • Mauritania (0) • Togo (1*)
		<ul style="list-style-type: none"> • Sierra Leone (1*) • Mali (1*) 	
END OF DAY 3			
DAY 4: THURSDAY, 11 NOVEMBER 2021			
10:00–08:30	Session 8 Closed meeting RAG–FMD-WG	RAG & FMD-WG 10 min. per country plus 20 min. to discuss roadmap and recommendations	
10:30–11:00	Session 9 – Roadmap update (Meeting objective 6)		<i>Chair:</i> Brice Lafia (ECOWAS RAHC) <i>WG facilitator:</i> Madhur Dhingra FAO member, FMD-WG
	- Presentation of roadmap based on the RAG assessment	Fabrizio Rosso (EuFMD member, FMD-WG)	
11:00–11:30	Session 10 – Roadmap conclusion (Meeting objective 7)		
	- Presentation of draft recommendations of 3rd West Africa FMD roadmap meeting	Néo Mapitse (WOAH Co-chair, FMD-WG)	
END OF THE MEETING			

CLOSED SESSION: PANEL COMPOSITION AND MEETING SCHEDULE
(Meeting with each country to discuss the FMD situation, PCP-FMD and way forward)

PANEL 1	PANEL 2
Néo Mapitse (WOAH)	Melissa McLaws (FAO)
Madhur Dhingra (FAO)	Moetapele Letshwenyo (WOAH)
Bolortuya Purevsuren (WOAH)	Muhammad Javed Arshed (FAO)
Ismaila Seck (FAO RAF)	Karim Tounkara (WOAH)
Joseph Awuni (FAO RAF)	Lionel Gbaguidi (RAF)
Fabrizio Rosso (EuFMD)	Etienne Chevanne (EuFMD)
Kees van Maanen (EuFMD)	Mamadou Niang (FAO RAF)

Day 1 (time in GMT)

PANEL 1	PANEL 2
Ghana (12:00)	Burkina Faso (12:00)
Cabo Verde (12:30)	Benin (12:30)
Guinea-Bissau (13:00)	Guinea (13:00)
Live interpretation	
EN, FR, PT	EN, FR

Day 2 (time in GMT)

PANEL 1	PANEL 2
Gambia (12:45)	Ivory Coast (12:45)
Liberia (13:15)	Senegal (13:15)
Nigeria (13:45)	Niger (13:45)
Live interpretation	
-	EN, FR

Day 3 (time in GMT)

PANEL 1	PANEL 2
Sierra Leone (12:30)	Mauritania (12:30)
Mali (13:00)	Togo (13:00)
Live interpretation	
EN, FR	EN, FR

Annex 2

List of participants

INTERNATIONAL ORGANISATIONS	WEST AFRICA MEMBER STATES (N=15)		OBSERVERS
<p>GF-TADs FMD-WG (FAO) Melissa McLaws Madhur Dhingra Muhammad Javed Arshed (WOAH, founded as OIE) Néo Mapitse Moetapele Lethswenyu Bolortuya Purevsuren (EuFMD) Fabrizio Rosso</p> <p>FAO RAF ECTAD Baba Soumare Abebe Wolde Yaghouba Kane Ismaila Seck Joseph Awuni Mamadou Niang Cyprien Biassou Lionel Gbaguidi Anthony Akunzule Lisette Kohagne Lofti Allal Estelle Kanyala René Bessin Mamadou Racine Ndiaye Mamadou Lamarana Soaré Lassina Ouattara Lassina Doumbia Mahmoudou Diall Yanira Santana Morales Baba Sall Issoufou Maikano Guy Gerard Kouame Ahmadou Niang Youssou Ndiaye Austine Bitek Kinda Boadou</p> <p>WOAH Africa Karim Tounkara</p> <p>FAO HQ Astrid Tripodi</p> <p>EuFMD Kees van Maanen Giancarlo Ferrari Etienne Chevanne Enrico Mezzacapo</p>	Benin	Yao Akpo (CVO) Corneille Gnanvi (PCP-FMD) Victor Allontano (Epi) Fidelia Virginia Djegui (Lab)	DG-Santé Moritz Klemm Francesco Berlingieri
	Burkina Faso	Maiga Adama (CVO) Abdoul Salam Ouedraogo (Epi) Bruno Ouoba and Hamidou Sandaogo Ouandaogo (Lab)	ECOWAS RAHC Brice Lafia
	Cabo Verde	Ana Lina Perira de Barros Olende (CVO) Sara Maximo Vieira (PCP-FMD) Maria Imacula da Conceicao Evora (Epi) Iolanda de Mata dos Santos (Lab)	USDA APHIS Germaine Minoungou
	Ivory Coast	Vessaly Kallo (CVO) Lamber N'Guessan Assanvo (Epi) Cyprien Yapi Bokpe (Lab)	WRLFMD (The Pirbright Institute) Donald King
	Gambia	Abdou Ceesay (CVO) Ousman Ceesay (PCP-FMD) Janneh Bai (Epi) Saidal Ali Bah (Lab)	ANSES Labib Bakkali-Kassimi
	Ghana	Patrick Abakeh (Ghana) Edward Fenteng Danso (RESEPI) Emmanuel Allegey Cudjoe (RESOLAB)	NVRI VOM David Ehizibolo
	Guinea	Daouda Bangoura (CVO) Abdoul Rahim Diallo (PCP-FMD) Abdoulaye Diallo (Epi) Mamadou Ramadan Diallo (Lab)	CIRAD Cécile Squarzoni Diaw Andrea Apolloni Oumaima Mtaalah Elena Arsevska
	Guinea- Bissau	Bernardo Cassama (CVO) Ivo Mendes (PCP-FMD) Mario Marciano Gomes (Epi) Maria Henriqueta Rosalia Viera (Lab)	Boehringer-Ingelheim Nicolas Denormandie
	Liberia	Joseph N.R. Anderson (CVO)	FMD-WG Support Unit Etienne Chevanne Tiziano Federici
	Mali	Drissa Coulibaly (CVO) Cheik Oumar Fomba (Epi) Aladiog Maiga and Mohamed Adama Diakite (Lab)	VLC Wilmot Chikurunhe Elton Zinyuke Kudzayi Chimbindi Maria De La Puente Arevalo Alessandra Alviti
	Niger	Abdou Issiako (CVO) Haido Malik and Haladou Gagara (Lab)	
	Nigeria	Alabi Olaniran (CVO) Peter Umanah Yakubu Ago	
	Senegal	Mbargou Lô (CVO) Mathioro Fall (PCP-FMD) Amadou Allasane Ndiaye (Epi) Alpha Amadou Diallo (Lab)	
	Sierra Leone	Mohamed Alpha Bah (CVO) Sahr Raymond Gborie (Epi) Ahmed Foray Samba (Lab)	
	Togo	Batawui Komla Batasse (CVO) Aboudou Boukaya Bedekelabou André Pouwedou	

Annex 3

Detailed PCP-FMD stage evaluation for West Africa (2021)

COUNTRY	RAG PROPOSAL		COMMENTS
	2019	2021	
Benin	1*	1*	<ul style="list-style-type: none"> FMD is one of the nine priority diseases in Benin. 169 suspected FMD outbreaks from 2018 to 2020 (cattle, ovine, caprine), 90 reported on WAHIS (2018/19). Passive surveillance by farmers, or during farm visits by Veterinary Services or private vets. There is no rapid reporting system from the field yet, although there are improvements to digitalise the reporting system (<i>système d'information zoo-sanitaire</i>) involving public and private stakeholders. FMD mostly occurs during the rainy season, where livestock density is the highest. Vaccination is not implemented. Identified hotspot (high-risk period and areas are known): uncontrolled cross-border (from Mali, Burkina Faso, Niger to Nigeria) and national (from north to south) movements of livestock, common watering points. FMD Lab diagnostic capacity is lacking: no reagent available for ELISA, no technical skills for molecular testing for FMD; however, there is knowledge on how to ship samples, although no samples were submitted for more than 10 years to the FAO/WOAH (founded as OIE) Ref Lab Network. No socio-economic impact assessment of FMD conducted. A national programme of FMD control elaborated in 2017, a national workshop conducted in June 2019 with the following recommendations: seek endorsement from the government, assess direct economic losses due to FMD, plan targeted FMD vaccination for dairy cattle and meat production chains. <p><u>Gaps and support needed</u></p> <ul style="list-style-type: none"> ✓ Strengthen Veterinary Services capacities ✓ Elaborate FMD RBSP integrating livestock mobility ✓ Support to conduct targeted FMD vaccination (high-production areas, dairy sector) ✓ Raise awareness on FMD among national stakeholders and improve national legislations ✓ Better understand the PCP-FMD <p><u>Recommendations</u></p> <p>Request PSO support to draft RAP (template to be sent), as 'national strategy on FMD control needs to be updated'.</p> <p>PCP-FMD Stage 1 provisional. Submit the RAP to the FMD-WG by May 2022.</p>

(Cont.)

COUNTRY	RAG PROPOSAL		COMMENTS
	2019	2021	
Burkina Faso	1*	1	<ul style="list-style-type: none"> • 114 FMD outbreaks in 2020–2021 (12/13 regions, 31/45 provinces). FMD not reported in Sahelian region. FMD outbreak investigation is a gap. • FMD passive surveillance – no active surveillance. Collaboration with FAO to support sample collection at border post by a field officer. • NSP serosurvey on cattle, ovine, caprine, pigs showing 21% of seropositives. • Inactivated lateral-flow devices (LFDs) sent to ANSES in 2020, SAT 2/VII identified. Good lab capacities but lack of ELISA-Ag and polymerase chain reaction (PCR) reagents • Targeted vaccination around outbreaks (combined with vaccination against other TADs), using quadrivalent vaccines (A, O, SAT 1 and 2). Will soon start vaccination in the dairy sector. Socio-economic impact assessment of FMD ongoing. • Control of animal movements (issuance of a certificate of international transhumant movement). • Awareness campaign conducted around outbreaks, multi-disease biosecurity awareness. • Hotspots for introduction: lack of biosecurity, transhumance and traditional husbandry systems. • Hotspots for spread: transhumance, multispecies animal transportation, traditional husbandry systems' lack of biosecurity. • Gaps: under-reporting (lack of training of field officer, lack of bottom-up communication of suspicions, lack of outbreak investigation material), lack of diagnostic reagents, low biosecurity levels at farms, implication of wildlife under-documented, security issues in some parts of the country. <p>RAP submitted in November 2020, accepted in 2021 by the RAG – focus should now be on monitoring its implementation, and considerations of the implication of security issues on TAD surveillance and control.</p> <p><u>Gaps and support needed</u></p> <ul style="list-style-type: none"> ✓ Support training at central and field level ✓ Training for FMD diagnosis ✓ Support (logistically and financially) of the surveillance system so that samples are timely collected and transported ✓ Support awareness campaigns to livestock owners <p>Recommendations</p> <ol style="list-style-type: none"> 1. Demonstrate good understanding of disease in the country, FMD risks and current gaps. 2. Continue to work closely with the assigned PSO to monitor the implementation of the RAP. 3. Request a new PVS mission (last one in 2008). <p>Confirmed in PCP-FMD Stage 1.</p>
Cabo Verde	0	0	<ul style="list-style-type: none"> • Cabo Verde has never reported FMD in the country. Vaccination is not practised. • Veterinary Services are short-staffed; only three vets at the central level and some islands do not have any official vets – currently ten vet students are being trained in Portugal and will return to Cabo Verde Veterinary Services. • With financial and technical support from AU-IBAR, epidemiological and serological studies (for FMD and peste des petits ruminants) have been designed and will be conducted at end of 2021. Samples collected will be tested by AU-PANVAC. These studies to prepare a dossier for WOAHP recognition of disease-free status (fast-track process). • The country has identified four entry gates as hotspots for FMDV introduction and where quarantine, vet inspections and testing should be strengthened. AU-IBAR has been requested to support training of officers at the entry gates. • Last PVS evaluation in 2014. <p><u>Gaps and support needed</u></p> <ul style="list-style-type: none"> ✓ Challenges to organise international sample shipments to Laboratoire National de l'Élevage et de Recherches Vétérinaires (LNERV) Dakar ✓ National laboratory capacities to be built <p>Recommendations</p> <p>Cabo Verde is in Stage 0. The country is encouraged to apply for WOAHP status of FMD freedom without vaccination (fast track) using historical FMD records, outcomes of epidemiological and serological studies supported by AU-IBAR and consultation of the WOAHP <i>Terrestrial Code</i> to be fully aware of the technical requirements for a dossier.</p> <p>PCP-FMD Stage 0</p>

(Cont.)

COUNTRY	RAG PROPOSAL		COMMENTS
	2019	2021	
Ivory Coast	1*	1*	<ul style="list-style-type: none"> • Six suspected FMD outbreaks from December 2018 to November 2021, in small ruminant populations only. Only one laboratory-confirmed outbreak (68 outbreaks in WAHIS). Under-reporting is acknowledged. FAO support to the implementation of Event Mobile Application (EMA-i) system. • Community-based surveillance (tailor FMD case definition so that it can be used by communities and CAHWs, with FAO support). • 'Groupe de défense sanitaire' established. • Serotype O identified in June 2021. • FMD 2018 epizootic had a large direct impact on pig sector (10,000–15,000 deaths). • PVS gap mission in 2016, technical competences and human resources key issues. • FAO support in risk analysis (national consultant in November 2021). • Rapid movements of livestock from Burkina Faso to Abidjan, and from north to south of Ivory Coast. • FMD awareness workshop with livestock farmers and vets (ISAVET programme) in northern regions in November 2021. • PVS mission in 2011 and gap analysis in 2013. • Identified hotspots: transhumance routes, livestock markets. • Synergies with other TAD control: peste des petits ruminants, contagious bovine pleuropneumonia, trypanosomiasis, African swine fever. <p><u>Gaps and support needed</u></p> <ul style="list-style-type: none"> ✓ Lack of human and financial resources ✓ Lack of response capacity ✓ Low awareness ✓ Need for training on better understanding of animal mobility, vaccination, surveillance <p><u>Recommendations</u> PCP-FMD Stage 1 provisional extended for six additional months. Submit the RAP to the GF-TADs FMD-WG by May 2022.</p>
Gambia	1*	1*	<p>In the country presentation the following elements were presented:</p> <ul style="list-style-type: none"> • Several FMD outbreaks in the period 2019–2021, particularly in October–December 2020 (Oct–Dec is the FMD peak season). • Attention to outbreak investigation, sampling, movement control, supportive treatment and awareness campaigns. • Mainly passive surveillance (FMD as part of 12 relevant TADs). • No NSP serosurveillance carried out yet but listed as key activity in the RAP (ongoing development with PSO). • Risk hotspots are border posts and markets, and many non-official border posts (porous borders with Senegal, intense animal movements to weekly markets and owing to transhumance). • Cross-border collaboration with Senegal is in progress under a Technical Cooperation Programme for highly pathogenic avian influenza. <p>Control measures: vaccination in high-risk areas (quadrivalent, A, O, SAT 1 and SAT 2). Post-vaccination monitoring is not implemented. Sustainability of vaccination programme to be addressed. Since 2018, support from United States Department of Agriculture for logistics and government support for procurement of vaccine. The plan is to implement annual vaccination campaigns, but acquisition of vaccines is a major challenge (long procurement periods of six to seven months).</p> <p><u>Gaps and support needed</u></p> <ul style="list-style-type: none"> ✓ Capacity development (training on diagnostics, epidemiology, surveillance design, strengthening of lab) ✓ Vaccine acquisition and vaccination strategy (challenges for first vaccination) ✓ Animal identification systems <p><u>Recommendations</u> PCP-FMD Stage 1 provisional extended for additional six months Submit the RAP to the GF-TADs FMD-WG by May 2022 with the assistance of the appointed PSO.</p>

(Cont.)

COUNTRY	RAG PROPOSAL		COMMENTS
	2019	2021	
Ghana	1*	1*	<ul style="list-style-type: none"> • NSP antibody prevalence in Southern Ghana reported at 88.2%. • 17 FMD outbreaks reported for 2018/2019. • Last WOAAH PVS mission 8–16 August 2011. • High population of small ruminants followed by large ruminants and less than one million pigs. <p><u>Gaps and support needed</u></p> <ul style="list-style-type: none"> ✓ Low number of lab and field veterinary staff ✓ Lack of diagnostic reagents for serology and PCR ✓ Lack of FMD LFDs for use at point-of-care animal health facilities ✓ Strengthening of surveillance activities <p><u>Recommendations</u></p> <p>PCP-FMD Stage 1 provisional for additional six months. Submit the RAP to the GF-TADs FMD-WG by May 2022.</p>
Guinea	1*	1	<ul style="list-style-type: none"> • FMD was cyclical before 2018 but became endemic since then. • In 2019, a mass vaccination of cattle was conducted using monovalent vaccine (serotype O) through the REDISSE project (World Bank funded). But vaccination was not followed up annually and therefore its mid-term impact on FMD occurrence was minimal. • Passive surveillance of FMD using CAHWs. • 145 outbreaks reported in WAHIS for 2018/2019. • In response to the increase in number of outbreaks in 2021, particularly at border areas, an emergency response is being set up by FAO, including awareness raising and support for sample shipment to FMD Ref Labs. • National laboratory has just been renovated and FMD lab diagnostic capacities strengthened (ELISA NSP and O-specific). Missing reagents to conduct PCR testing. • Socio-economic impact assessment of FMD has been conducted by a national consultant hired through United States Defense Threat Reduction Agency (DTRA) fund. • Last PVS mission in November 2019. <p><u>Gaps and support needed</u></p> <ul style="list-style-type: none"> ✓ Lack of expertise in Veterinary Services (TAD outbreak investigations, socio-economic impact assessment) ✓ Support for further socio-economic analysis (cost–benefit of vaccination) ✓ Build capacities at the national laboratory ✓ Design an FMD national surveillance plan ✓ National surveillance network (RENAVE) and national lab to be supported by government funding <p><u>Recommendations</u></p> <p>Guinea submitted a RAP in March 2019, accepted by the RAG in 2021. Focus should now be on budget allocations and implementation of priority activities and later on, preparation of an RBSP with support of the two appointed PSOs.</p> <p>PCP-FMD Stage 1 confirmed. Improve the RAP according to the GF-TADs FMD-WG’s recommendations and implement activities.</p>

(Cont.)

COUNTRY	RAG PROPOSAL		COMMENTS
	2019	2021	
Guinea-Bissau	1*	1*	<ul style="list-style-type: none"> The serotypes A and O identified. Between 2019 and 2021, 22 FMD outbreaks were reported in cattle. Samples (sera, swabs) from FMD cases were sent within the framework of RESOLAB to LNERV for serotyping and shipped to ANSES for molecular characterisation. The national veterinary laboratory is under renovation through REDISSE and three regional laboratories will be also renovated. Laboratory for diagnosis of animal diseases and human diseases is being constructed. Qualitative risk mapping and cross-border mobility study conducted (FAO support). Hotspot: areas with high animal density (watering point, pastures, main livestock markets, border area). Management of FMD outbreak: movement control. Awareness communication materials on FMD were produced, funded by FAO. Socio-economic impact assessment conducted (FAO support): direct loss estimated as well as cost of vaccination. RAP is being revised with the PSO. <p>SAT outputs: PCP-FMD Stage 1: 36% completed; PCP-FMD Stage 2: 26% completed; PCP-FMD Stage 3: 8% completed</p> <p><u>Gaps and support needed</u></p> <ul style="list-style-type: none"> ✓ Lack of specialised personnel for outbreak investigation and socio-economic impact assessment ✓ Limited capacity of the national lab and lack of government funding ✓ Need for support in the design of a surveillance plan ✓ Lack of governmental funding for the surveillance network (RENAVE) <p><u>Recommendations</u></p> <p>PCP-FMD Stage 1 provisional for additional six months. Submit the RAP to the GF-TADs FMD-WG by May 2022.</p>
Liberia	0	Not assessed	<ul style="list-style-type: none"> No FMD outbreak confirmed but several reports of FMD suspicion have been received. FMD one of the 12 priority diseases listed in Animal Disease Surveillance and Response System (ADSRS) since January 2019. However, no specific surveillance for FMD (active, NSP). Livestock/meat value chain studied. Risk of FMD introduction through the border with Sierra Leone (import, common grazing). Moderate knowledge from FMD risk assessment acknowledged. No control measures for FMD. No socio-economic impact assessment of FMD. <p><u>Gaps and support needed</u></p> <ul style="list-style-type: none"> ✓ Limited Veterinary Services workforce ✓ Absence of NSP kits for serosurveillance ✓ Provide training to draw RAP <p><u>Recommendations</u></p> <p>Liberia did not attend the West Africa roadmap meeting and its PCP-FMD stage was not assessed by the RAG.</p>

(Cont.)

COUNTRY	RAG PROPOSAL		COMMENTS
	2019	2021	
Mali	1*	1*	<ul style="list-style-type: none"> • 20 FMD outbreaks between January 2020 and October 2021. • Ten samples (epithelia and swabs) were sent to ANSES by Direction Nationale des Services Vétérinaires (DNSV) and Laboratoire Central Vétérinaire (LCV) in August 2021. • Passive surveillance involving private and public agents (Epivet Mali is the epidemiological network). In 2018/2019, training of 52 field officers on surveillance of TADs and sample collection. • Outbreak investigation with awareness raising, movement restriction/control using sanitary permits, isolation of sick animals. • FMD vaccination in peri-urban dairy areas. • Socio-economic impact assessment of FMD carried out in 2020 (DTRA fund): direct losses due to FMD estimated between 2015 and 2020. There will be a 'validation workshop' of the final report, but one recommendation is targeted vaccination in dairy sector. • Bilateral agreement with Mauritania to better understand cross-border animal mobility. • RAP development ongoing with support of PSO but some activities listed in draft RAP already implemented. • Terms of reference of an FMD serosurvey developed by LCV. • Hotspots: national movement of livestock, gathering points, transhumance and commercial movement of livestock. <p><u>Gaps and support needed</u></p> <ul style="list-style-type: none"> ✓ LCV poorly equipped for virus characterisation, lack of reagents for serotyping (priority for Mali) and lack of transport medium ✓ Difficult supply of vaccines (insufficient number of doses, long purchase procedures) ✓ Support sample shipment to Ref Lab ✓ Low capacities of Veterinary Services <p><u>Recommendations</u></p> <p>PCP-FMD Stage 1 provisional for additional six months. Submit the RAP to the GF-TADs FMD-WG by May 2022.</p>
Niger	1*	1*	<ul style="list-style-type: none"> • Seven outbreaks in Dosso and Niamey regions, serotype A and SAT 2 detected in collaboration with ANSES and University of Tillabéry. New batch of samples to be sent to ANSES in 2022. • World Bank project (PIMELAN) working with DNSV, Laboratoire Central de l'Élevage (LABOCEL) and FAO ECTAD, with an FMD component. • Outbreak investigation carried out by LABOCEL, almost national NSP serosurvey: 490 sera sampled in first phase (second phase ongoing); positivity rates NSP: 73% BV, 60% OV, 4% CP. • Awareness on the management of sick animals, and movement restriction and biosecurity. • PVS updated in 2019. • RAP development ongoing with support of PSOs. <p><u>Gaps and support needed</u></p> <ul style="list-style-type: none"> ✓ Study of seasonality of FMD needed, as well as a completed picture of circulating viruses ✓ Need ELISA kits (to do serotyping in Niger) and LFDs at central level, and call for better coordination at national level to ship samples to international ref lab ✓ Need for capacity building to use PCR for FMD ✓ Need training with international Ref Labs for virus characterisation (to enhance prompt virus characterisation) ✓ Support to socio-economic impact assessment of FMD by the FMD national committee advised before planning FMD vaccination under PIMELAN project <p><u>Recommendations</u></p> <p>PCP-FMD Stage 1 provisional for additional six months. Work in close collaboration with appointed PSOs. Submit the RAP (currently under validation) to the GF-TADs FMD-WG by May 2022.</p>

(Cont.)

COUNTRY	RAG PROPOSAL		COMMENTS
	2019	2021	
Nigeria	1*	1*	<ul style="list-style-type: none"> • Four serotypes currently circulating: O, A, SAT 1 and SAT 2. • Active surveillance: 1,800 sera from small ruminants taken in Northern Nigeria (through an EuFMD-funded project and in collaboration with NVRI VOM and WRLFMD). • EuFMD FAR project with NVRI VOM and the Pirbright Institute on optimising environmental surveillance for FMD and similar TADs. • O, A, SAT 2 detected using ELISA Ag. • Control measures for FMD outbreak: vaccination, biosecurity, aggressive farmer sensitisation via extension unit, movement restrictions. • Workshop for CAHWs to train for sample collection and outbreak investigation. <p><u>Gaps and support needed</u></p> <ul style="list-style-type: none"> ✓ Weak disease surveillance and reporting network ✓ Limited advocacy, awareness creation and sensitisation of livestock farmers ✓ Scarce logistics and vaccines for 75% vaccination campaign coverage and sero-monitoring for FMD and other diseases ✓ Limited capacity of technical field staff in the State and laboratories ✓ Weak collaboration between public and private vets <p>Needs for support from development partners:</p> <ul style="list-style-type: none"> ✓ Provision of logistics and vaccines for adequate vaccination campaign coverage for TADs ✓ Laboratory equipment, reagents, etc. ✓ Capacity building, advocacy and awareness creation on TADs ✓ Facilitation of cross-border meetings and collaboration <p>Recommendations PCP-FMD Stage 1 provisional for additional six months. Submit the RAP to the GF-TADs FMD-WG by May 2022.</p>
Senegal	1*	1*	<ul style="list-style-type: none"> • 28 FMD outbreaks in 2019, 233 in 2020, 328 in 2021; BV, OV, CP affected. • Identified serotypes: O in 2019, SAT 1 and SAT 2 in 2020; very few samples submitted to WOA/FAO Ref Lab; limited motivation of field officer to do sample collection reported. • In 2019 and 2020, trivalent (O, A, SAT 2) imported FMD vaccines used for the dairy sector (targeted vaccination). • National surveillance system (SNSE) with more than 300 field officers, training for field officers conducted, system is active. • NSP serosurvey conducted in 2015 with support of FAO. • Risk maps of FMD introduction and spread available with support of EuFMD (training programme with CIRAD). • Last PVS mission in November 2018. <p><u>Gaps and support needed</u></p> <ul style="list-style-type: none"> ✓ Epidemiological study on FMD needed ✓ Financial resources to purchase FMD vaccines ✓ Strengthen lab capacities (ELISA reagents) <p>Recommendations PCP-FMD Stage 1 provisional for additional six months. Work in close collaboration with appointed PSO. Submit the RAP to the GF-TADs FMD-WG by May 2022.</p>

(Cont.)

COUNTRY	RAG PROPOSAL		COMMENTS
	2019	2021	
Sierra Leone	1*	1*	<ul style="list-style-type: none"> • Eight outbreaks reported, mostly in cattle, between January 2020 and February 2021 but no samples were submitted for virus characterisation. • Passive surveillance. • Awareness raising as a control measure for outbreaks investigation (under DTRA fund). • FMD vaccination not implemented. • Adoption of Integrated Animal Disease Surveillance and Reporting system where farmers report outbreaks of TADs to the nearest livestock personnel in districts; issuance of weekly epi bulletin. • Use of FAO EMA-i. • Socio-economic impact assessment conducted through a consultant under FAO–DTRA budget (report will be validated in November 2021). <p>Hotspots: districts bordering neighbouring countries, due to unregulated livestock movements. Eight border posts (points of entry) were established to regulate cross-border movements.</p> <p><u>Gaps and support needed</u></p> <ul style="list-style-type: none"> ✓ Call for a regional approach to FMD control ✓ Training of field personnel in FMD recognition and investigation ✓ Establish capacity for FMD diagnosis in the country and train personnel in advanced lab diagnostic techniques ✓ Provision of laboratory reagents and kits ✓ Provision of FMD vaccines and vaccination equipment ✓ Develop policies for prevention and control of FMD <p><u>Recommendations</u></p> <p>PCP-FMD Stage 1 provisional for additional six months. Work in close collaboration with appointed PSO. Submit the RAP to the GF-TADs FMD-WG by May 2022.</p>
Togo	1*	1*	<ul style="list-style-type: none"> • Last PVS mission in January 2019. • Yearly patterns of FMD outbreaks peak during the rainy season (July–September); however no work has been done to investigate risk factors and relation to animal mobility issues. • High turnover and retirements in the Veterinary Services. • Passive surveillance, and no laboratory confirmation of clinical suspicions. • Risk mapping initiated. • Hotspots: based on NSP serosurvey in 2020 and transhumance corridors. • Awareness only, no capacity for a sustained outbreak response. • No FMDV typing since 2012. <p><u>Gaps and support needed</u></p> <ul style="list-style-type: none"> ✓ Need support to develop RAP, PSO mechanism ✓ Need support to report on WAHIS platform ✓ Laboratory diagnostic capacity <p><u>Recommendations</u></p> <p>PCP-FMD Stage 1 provisional for additional six months. PSO support should be requested to the GF-TADs FMD-WG. Submit the RAP to the FMD-WG by May 2022.</p>

Annex 4

Questionnaire assessment report – FMD vaccination programmes

The survey was completed by 11 countries that are in different stages of the PCP-FMD (Table VI).

TABLE VI: Countries that completed the vaccination survey, by PCP-FMD stage.

2021 PCP-FMD STAGE	COUNTRIES
1*	Burkina Faso, Ivory Coast, Gambia, Ghana, Guinea-Bissau, Mali, Niger, Nigeria, Sierra Leone
1	Burkina Faso, Guinea

VACCINATION POLICIES

- Six countries indicated that FMD vaccination was carried out between 2020 and 2021 mostly for cattle; only one country reported use of vaccine in species other than cattle.
- Three countries indicated that they perform targeted vaccination campaigns for the dairy sector in peri-urban areas.
- Three countries reported using FMD vaccination as a tool for emergency response.
- Only one country reported considering the vaccination schedule as practised by neighbours.

IMPLEMENTATION OF VACCINATION

- Overall population coverage attained was very low (usually less than 1%).
- In three countries, the government covers all costs of vaccination; in one country the costs are shared between the government and livestock owners and in three countries the livestock owner covers the entire cost.
- All countries indicated that funds in the national budget were NOT sufficient for vaccination.
- One country replied that 100% of vaccine costs were covered by a development partner.
- Reported cost per dose: 1,200–1,800 CFA francs (US\$ 2.12–3.18).
- Post-vaccination monitoring is done to ensure that the vaccine is providing the expected protection. Only one country reported that samples have been submitted to PANVAC for vaccine matching and results are pending.
- Vaccine is administered by the national state veterinarian (4 countries); the local state veterinarian (3 countries); VPPs (5 countries); local private veterinarians (5 countries).
- Three countries reported that there were public–private partnerships relevant to vaccination.

VACCINES USED, VACCINE MATCHING AND POST-VACCINATION MONITORING

- Botswana Vaccine Institute was the supplier for two countries in the region in 2020–2021. NVRI VOM and Kevevapi each supplied vaccine in one country. The number of doses administered, as well as the serotypes included, varied across the region in 2020–2021.
- Two countries reported that they performed vaccine potency testing on the vaccine.
- Two countries reported FMDV serotypes used in vaccines were:
 - o A, O, SAT 2
 - o A, O, SAT 1, SAT 2

COVID-19 AND FMD VACCINATION

Three out of the 11 countries that responded to the question indicated that COVID-19 had an impact on FMD vaccination. This was due to changes in budget priorities and allocations, as well as the impact of social distancing requirements on mobilising livestock owners to participate in vaccination campaigns.

Annex 5

Recommendations

Considering:

- the adoption of the FAO–WOAH (founded as OIE) Global Strategy for the control of FMD (Bangkok, June 2012) with its three inter-related components on (1) the control of FMD, (2) the reinforcement of Veterinary Services and (3) the combined control of FMD with other animal diseases;
- the FMD endemicity in most of the countries of the region and the importance of controlling FMD due to its high contagion rate and important socio-economic impact related to food security, trade and sustainable development of the livestock sector;
- that many countries experience a lack of both financial and human resources to enable progress in FMD control;
- the lack of capacities for identification and characterisation of FMDV strains currently circulating in the region and the need of such information to select or adapt the vaccine strains to be used;
- the results of previous FMD regional roadmap meetings for West Africa held in Togo in 2016 and Senegal in 2019;
- the importance of having a RAG for West Africa, composed of three CVOs and leaders of the regional epidemiology and laboratory networks (RESEPI and RESOLAB) to provide leadership for countries to engage in and progress along the PCP-FMD;
- the possibility offered by EuFMD and the GF-TADs FMD-WG to provide specific support for countries through the PSO system;
- that the implementation of the roadmap vision requires the coordination of national efforts under an overall framework of progressive risk management to reduce the impact of FMD in the region, including sharing of information and technical knowledge and possible donor support;

The 14 countries attending (Benin, Burkina Faso, Cabo Verde, Ivory Coast, Gambia, Ghana, Guinea, Guinea-Bissau, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo) agree to:

1. Update the membership of the RAG, elected for a three-year period (2021–2024), voting members comprising:
 - Chair: CVO of Ivory Coast
 - Members: CVOs of Mali and Burkina Faso, and experts from Ghana leading RESEPI and RESOLAB.
2. Use the information presented during virtual FMD roadmap meeting (2021) as a basis to establish a provisional roadmap (2021–2026) for the countries of West Africa.

The countries identified the following priority areas for improved implementation of the Global FMD Control Strategy at the regional level and their national FMD control strategies, in alignment with the PCP-FMD principles.

Countries

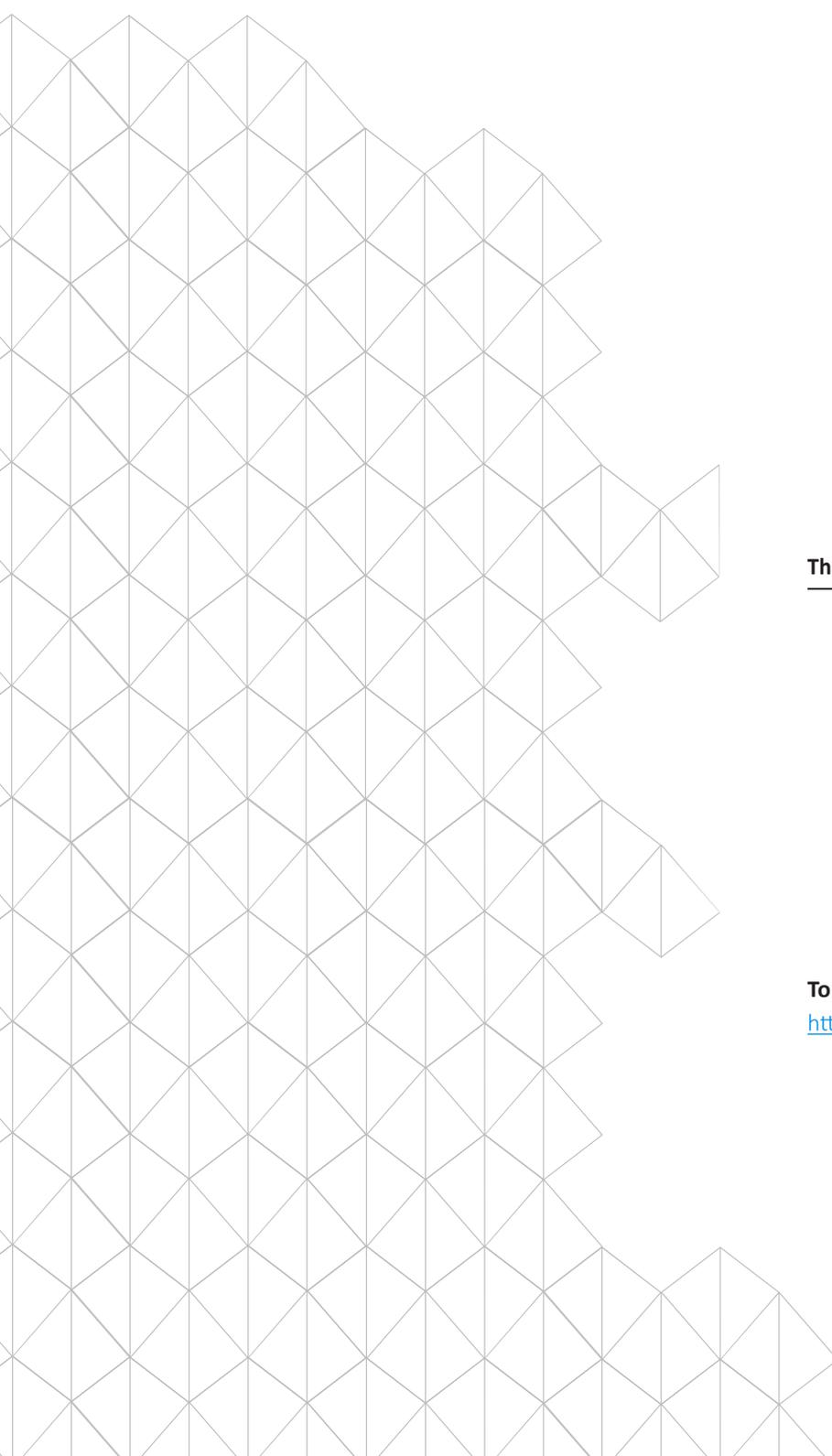
1. To continue progressing along the roadmap towards the vision of absence of clinical FMD by 2027, based on the principles of the PCP-FMD and the need for competent Veterinary Services. This includes:
 - When in provisional Stage 1, to submit their RAP to the FMD-WG by the agreed deadline, to allow them to advance to Stage 1.
 - To make use of PSOs, when assigned by the FMD-WG, to assist their progress on the PCP-FMD and to continue to identify and train regional experts to become PSOs.
2. To improve the knowledge about the regional epidemiology of FMD by:
 - improving awareness and capacity of stakeholders from the private and public sectors to recognise and report FMD, including VPPs and CAHWs;
 - strengthening capacities to improve risk-based (targeted) surveillance taking into account animal mobility and socio-economic considerations;

- ensuring rapid reporting and field investigation of suspected FMD outbreaks, including submitting samples to national or regional laboratories for confirmation and to the WOA/FAO FMD Reference Laboratories for full virus characterisation and vaccine matching.
3. To improve regional coordination by:
 - empowering national PCP-FMD, epidemiology and laboratory points of contact;
 - identifying and sharing relevant information (i.e. vaccine and vaccination campaigns, circulating strains, animal mobility etc.);
 - supporting and strengthening the RESEPI and RESOLAB networks to share good practices and lessons learnt and to build capacity in the countries.
 4. To strengthen capacities and ensure best use of the limited resources available to control FMD by:
 - conducting studies to assess the socio-economic impact of FMD on different stakeholders;
 - periodically assessing risks of FMD entry and spread, and maintaining updated data to inform targeting of interventions;
 - prioritising work to measure post-vaccination responses against representative FMD viruses for the serotypes and lineages circulating in West Africa;
 - encouraging national laboratories to participate in the proficiency tests organised by FAO and WOA/FAO Reference Laboratories (organised by the WRLFMD and the Pirbright Institute) and supporting these laboratories to build capacities (training, reagents and kits, material, etc.) to conduct FMD surveillance activities;
 - requesting specific laboratory capacities and surveillance system assessments through FAO's Laboratory Mapping Tool and Surveillance Evaluation Tool assessments and WOA/FAO PVS (Sustainable Laboratories tool), developing progressive improvement/action plans, and using these to mobilise resources for capacity improvements.
 5. To strengthen cross-border collaboration on FMD surveillance, reporting, lab detection and vaccination campaigns.
 6. To consider requesting an WOA/FAO PVS initial evaluation or WOA/FAO PVS follow-up mission (if the initial PVS evaluation was carried out before 2014) to update understanding of Veterinary Services capacity. This will help build capacity according to the identified gaps (Component 2 of the Global FMD Control Strategy).
 7. To seek to combine the prevention and control activities for FMD with those of other TADs such as peste des petits ruminants and contagious bovine pleuropneumonia, which are considered high-priority diseases in the region (Component 3 of the Global FMD Control Strategy).
 8. To promote responsible and prudent use of antimicrobials when they are applied for clinical treatment of secondary bacterial infection in FMD cases, considering the growing concern over antimicrobial resistance.
 9. To prioritise the implementation of FMDV immunogenicity studies, based on post-vaccination monitoring guidelines, and share the results to assess and evaluate immune response to the different vaccines used in the region.

Technical partners

10. Epidemiology and laboratory regional networks (RESEPI and RESOLAB) FMD subnetwork to:
 - formulate a two-year workplan that includes coordination and capacity-building activities. Training and capacity building should be cascaded to strengthen national capacities, including laboratories and VPPs. Training needs to include socio-economic impact assessment, risk assessment, early warning, FMD diagnostics, sample collection, submission and shipping;
 - improve communication and dissemination of information through the establishment of a disease reporting system and a regional database and/or website to share information on FMD;
 - strengthen the capacity of ECOWAS regional support laboratories, including in sequencing of pathogenic strains.
11. The GF-TADs FMD-WG and EuFMD to:
 - provide regional training courses, online courses and webinars on the PCP-FMD principles and surveillance processes, including diagnostics, sampling, sample shipment and other relevant topics;
 - undertake activities to improve laboratory and epidemiological capacities, in collaboration with relevant regional and global partners and the WOA/FAO Reference Laboratories.
 - work in collaboration with the ECOWAS and AU-IBAR to develop and implement a mutually agreed regional FMD control strategy for West Africa, providing a framework that unites Member States and stakeholders with defined responsibilities for implementation.

12. To explore the possibilities of setting up a regional vaccine bank with support of FAO, WOA, AU-IBAR and ECOWAS.
13. To promote WOA Laboratory Twinning programme to strengthen the regional capacity for the diagnosis of FMD, particularly for a supporting regional laboratory.



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