World Organisation for Animal Health

REPORT ON

Regional Training Seminar for WOAH National Focal Points for Veterinary Laboratories (Cycle III) – English-speaking Countries

Gaborone - Botswana
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Organised by

World Organisation for Animal Health (WOAH)

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Acronyms/Abbreviations

Africa CDC	Africa Centres for Disease Control and Prevention
ASF	African swine fever
AU-IBAR	African Union Inter-African Bureau for Animal Resources
AU-PANVAC	African Union Pan African Veterinary Vaccines Centre
BSC	Biological Standards Commission
BNVL	Botswana National Veterinary Laboratory
BSL	Biosafety Level
BVI	Botswana Vaccine Institute
CBPP	Contagious bovine pleuropneumonia
COMESA	Common Market for Eastern and Southern Africa
FAO	Food and Agriculture Organization of the United Nations
FIRABioT	Fortifying Institutional Resilience Against Biological Threats
FMD	Foot-and-mouth disease
IAEA	International Atomic Energy Agency
ICRC	International Committee of the Red Cross
IFBA	International Federation of Biosecurity Associations
ILRI	International Livestock Research Institute
LIMS	Laboratory Information Management System
LMT	Laboratory Mapping Tool
INTERPOL	International Criminal Police Organization
NFP	National Focal Point
NVRI	National Veterinary Research Institute
PPR	Peste des petits ruminants
PRD	Preparedness and Resilience Department
PVS	Performance of Veterinary Services
SADC	Southern African Development Community
SADCAS	Southern African Development Community Accreditation Service
SPS	Sanitary and Phytosanitary
VERTIC	Verification Research, Training, and Information Centre
WAHIS	World Animal Health Information System
WHO	World Health Organization
WOAH	World Organisation for Animal Health

Executive Summary

Since 2009, the World Organisation for Animal Health (WOAH, founded as OIE) has trained its national focal points in Africa to strengthen good governance and animal health management at national level by clarifying their roles and responsibilities in specific technical domains. Training began with the focal points for animal disease notification (Lilongwe, 2009), followed by those for veterinary products (Johannesburg, 2010) and aquatic animal diseases (Windhoek, 2010), and by 2016 six categories of focal points had completed one or more training cycles. The World Assembly of Delegates subsequently approved two new categories, Veterinary Communication and Veterinary Laboratories. National Focal Points for Veterinary Laboratories, who serve as WOAH's principal contacts on laboratory matters and work under the authority of the WOAH Delegate, have since been trained through two Pan-African cycles held in French and English: Cycle I in Harare, Zimbabwe (2016), and Cycle II in Tunis, Tunisia (2018).

Building on this foundation, Cycle III was delivered in 2025 through separate English- and French-language seminars targeting all designated focal points, regardless of prior participation. The Regional Training Seminar for WOAH National Focal Points for Veterinary Laboratories for English-speaking countries (Cycle III – English) was held in Gaborone, Botswana, from 8 to 10 July 2025, followed by the French-language seminar in Dakar, Senegal, from 29 to 31 July 2025. The Gaborone seminar was co-organised by the WOAH Regional Representation for Africa (Bamako) and the Sub-Regional Representation for Southern Africa (Gaborone), with the support of the Sub-Regional Representation for Eastern Africa (Nairobi), under the technical supervision of the Preparedness and Resilience Department (PRD, Paris), and with support from relevant WOAH Collaborating Centres and partners, including the Africa Centres for Disease Control and Prevention. The training was implemented with financial support from the UK Government International Biological Security Programme and the European Union.

The training brought together 27 of 28 English-speaking WOAH Members (96%), with a total of 33 participants, including 23% women. The training aimed to strengthen veterinary laboratory systems through a systems-based, One Health approach, focusing on laboratory sustainability, biological threat reduction, emergency management, and implementation of WOAH international standards.

Over three days, participants engaged in expert-led technical sessions, country case studies, facilitated group discussions, and field visits to the Botswana National Veterinary Laboratory (BNVL) and the Botswana Vaccine Institute (BVI). Key topics covered laboratory sustainability and governance, emergency management and biological threat reduction, and laboratory capacity building and networking. The training successfully enhanced participants' technical competencies, strengthened regional laboratory networking, and reinforced alignment with WOAH standards. Key outcomes included increased awareness of the need for harmonised laboratory protocols, improved sample-sharing systems, and sustained peer collaboration, including the proposal to establish a regional communication platform. Despite time constraints due to an ambitious agenda, the seminar met its objectives and contributed to WOAH's mandate to strengthen resilient, sustainable, and secure veterinary laboratory systems across English-speaking Africa.

This report outlines the proceedings of the training sessions (in summary) and presents the key takeaway points from the different sessions. The training was facilitated in a highly participatory and engaging manner using various tools and techniques.

The presentations given during the workshop can be found on the WOAH Africa website, whilst a series of photographs from the training are available on FLICKR.

Introduction

The World Organisation for Animal Health (WOAH) has long recognised that robust national laboratory systems are essential to effective animal health governance, disease surveillance, and the prevention and control of zoonoses. The responsibilities of WOAH National Focal Points were set out in the final report of the 76th General Session of the World Assembly of Delegates in May 2008: all focal points work under the authority of the WOAH Delegate, and any information they submit to WOAH is channelled through the Delegate, who remains the country's sole official representative. Within this framework, the terms of reference of National Focal Points for Veterinary Laboratories include establishing or linking with national networks of laboratory experts, maintaining dialogue with the Competent Authority for veterinary laboratories, coordinating national comments on draft WOAH standards, maintaining contact with WOAH Reference Laboratories and with other focal points in the region, and preparing proposals for the WOAH Laboratory Twinning Programme. WOAH supports focal points in these roles through targeted capacity building that clarifies roles and responsibilities, promotes adherence to international standards, and fosters regional networks to support the timely detection and reporting of animal health threats.

Training of National Focal Points for Veterinary Laboratories in Africa began with Cycle I, held in Harare, Zimbabwe, in 2016 for French- and English-speaking countries across the continent. It covered the role of laboratories in outbreak investigation, risk analysis, disease surveillance and international trade; the WOAH Manual of Diagnostic Tests and Vaccines for Terrestrial and Aquatic Animals and the standard-setting process; the transport of specimens; the validation of diagnostic assays; biosafety, biosecurity and biological threat reduction; quality management; and sustainable national laboratory networks, including laboratory mapping and twinning. Cycle II followed in Tunis, Tunisia, in 2018. Cycle III, held in 2025 as separate English- and French-language seminars, placed greater emphasis on laboratory sustainability, emergency management and biological threat reduction, reflecting the evolving risk landscape described below.

Concurrently, WOAH's Biological Threat Reduction Strategy and related programmes emphasise mitigating risks from both accidental and deliberate releases of animal pathogens by strengthening laboratory biosafety, biosecurity and emergency preparedness across One Health interfaces. Persistent and emerging and reemerging animal and zoonotic diseases have revealed systemic vulnerabilities in laboratory capacity, supply chains, and cross-sector emergency response that undermine resilience at national and regional levels. These events have reinforced the need for integrated, evidence-based approaches to laboratory sustainability, risk management in conflict and crisis settings, and novel biothreat sectors such as Cyberbiosecurity.

Building on this policy and evidence base, WOAH, in partnership with regional and international stakeholders, including the Africa Centres for Disease Control and Prevention, and with support from development partners such as Global Affairs Canada, has operationalised initiatives (for example, FIRABioT and the BioPREVAIL innovation ecosystem) to translate strategic objectives into practicable tools, training, and networks that strengthen laboratory sustainability, biosafety/biosecurity, and emergency management. The Regional Training Seminar held in Gaborone (8–10 July 2025) therefore formed part of a coordinated effort to address these gaps by equipping national focal points with technical knowledge, practical guidance, and peer linkages to improve diagnostic reliability, sample-sharing, and the integration of veterinary laboratories into cross-government emergency frameworks.

The overarching goal of the seminar was to equip National Focal Points for Veterinary Laboratories with the knowledge, tools, and peer connections needed to:

- Promote the economic and operational sustainability of veterinary laboratories;
- Strengthen biosafety and biosecurity practices to counter traditional and emerging biological threats;
- Enhance preparedness and response capacities for a wide range of emergencies; and

- Align with and contribute to the implementation of WOAH international standards.

The seminar was organised around three thematic pillars, namely Laboratory Sustainability, Emergency Management and Biological Threat Reduction, and Laboratory Capacity Building and Laboratory Networking, complemented by sessions on WOAH standards and the role of focal points in supporting their Delegates.

The participants comprised designated National Focal Points for Veterinary Laboratories from English-speaking WOAH Members across Africa. Facilitation and technical leadership were provided by experts from WOAH Headquarters, including the Preparedness and Resilience and Capacity-Building Departments, as well as from the WOAH Regional Representation for Africa (Bamako) and the Sub-Regional Representations for Southern Africa (Gaborone) and Eastern Africa (Nairobi). Additional technical contributions were made by the WOAH Biological Standards Commission, WOAH Reference Laboratories, and key partner organisations, including the Africa Centres for Disease Control and Prevention, the Food and Agriculture Organization of the United Nations, the African Union – Pan African Veterinary Vaccine Centre, the International Federation of Biosafety Associations, the International Livestock Research Institute, and regional laboratory networks under the Southern African Development Community.

This report introduces the Gaborone seminar by situating the activity within WOAH's normative and programmatic response to contemporary biological threats summarising the rationale for renewed investment in laboratory systems, and outlining the expected contributions of focal point capacity strengthening to resilient, sustainable, and secure veterinary laboratory networks across English-speaking Africa.

Opening Session

Welcoming remarks

1. Dr Kefentse Motshegwa, WOAH Delegate for Botswana, Department of Veterinary Services

In his opening remarks, Dr Kefentse Motshegwa, WOAH Delegate for Botswana, welcomed the delegates to Botswana on behalf of the host country. He encouraged the laboratory focal points to make the most of the presence of their peers by interacting, exchanging notes and learning from each other's experiences, in order to enhance their day-to-day services to WOAH and to their countries.

2. Dr Moetapele Letshwenyo, Sub-Regional Representative for Southern Africa, World Organisation for Animal Health (WOAH)

Dr Letshwenyo welcomed participants and highlighted the essential role of veterinary diagnostic laboratories in supporting animal health systems through disease surveillance, diagnosis, outbreak response, and the provision of evidence for safe trade. He emphasised the importance of strengthening laboratory biosafety, biosecurity, and sustainability to reduce biological threats and ensure the safe management of hazardous biological materials. He also underscored the growing contribution of veterinary laboratories to national and cross-sectoral preparedness under the One Health approach and reaffirmed WOAH's commitment to building the capacity of National Focal Points through training and technical support. He noted that the seminar would focus on laboratory sustainability, biological threat reduction, and emergency management, with the aim of supporting Members in implementing WOAH international standards.

3. Hon. Dr Edwin Dikoloti, Acting Minister of Lands and Agriculture, Government of the Republic of Botswana

In his opening remarks, Hon. Dr Edwin Dikoloti, Acting Minister of Lands and Agriculture, welcomed participants to Botswana and emphasised that training veterinary personnel is vital as countries confront transboundary animal diseases and environmental challenges. He highlighted Botswana's strong adherence to WOAH standards and to sanitary and phytosanitary standards that protect animal and human populations and facilitate trade in livestock and livestock products. He also underlined the vital role of agriculture in supporting rural livelihoods and in the country's development strategy, and the national significance of cattle to Botswana. He commended WOAH for its efforts to improve animal health and welfare globally, and urged WOAH National Focal Points to fully understand their responsibilities, share knowledge, train others on WOAH standards, and support cross-sectoral collaboration, noting that ongoing challenges such as avian influenza underscore the importance of resilient veterinary systems.

Introduction of Participants and Expectations of the Workshop

During the opening session, time was spent exploring participants' workshop expectations. Most of these expectations related to the need for further capacity development, understanding the various threats and getting to know more about the support WOAH could offer during the duration of the training.

Seminar Objectives and Format Overview

Presented by Mr Ian Peter Busuulwa, Project Officer – Biological Threat Reduction, WOAH Sub-Regional Representation for Eastern Africa

Mr Ian Peter Busuulwa presented an overview of the objectives, structure, and delivery approach of the Regional Training Seminar for WOAH National Focal Points for Veterinary Laboratories, outlining the training strategic purpose, thematic focus areas, and implementation format. He emphasised that the training was designed to strengthen the capacity of National Focal Points by equipping them with the necessary knowledge, practical tools, and professional networks required to support resilient and sustainable veterinary laboratory systems.

The presentation highlighted that the seminar adopts a systems-based and One Health–oriented approach and further explained that the training was structured across three thematic days, combining technical presentations, country experience sharing, group discussions, and field visits to promote interactive learning, peer exchange, and practical application of concepts. His presentation provided participants with a clear roadmap of the training programme and clarified their roles and expectations throughout the seminar.

Key Points from the Presentation

- The core objectives included promoting the economic and operational sustainability of laboratories, strengthening biosafety and biosecurity, enhancing emergency preparedness and response capacities, and supporting alignment with WOAH international standards.
- The training was structured around three thematic areas: Laboratory Sustainability, Emergency Management and Biological Threat Reduction, and Laboratory Capacity Building and Networking.
- A blended and participatory training format was adopted, including plenary technical presentations, country experience sharing (panel discussions), group discussions, field visits, and networking sessions.
- The presentation and more details can be found here.

Overview on the mandate, governance, and strategic direction of WOAH

Presented by Dr Moetapele Letshwenyo, Sub-Regional Representative, WOAH Sub-Regional Representation for Southern Africa

Dr Moetapele Letshwenyo delivered an overview presentation on the mandate, governance, and strategic direction of the World Organisation for Animal Health (WOAH). The presentation outlined WOAH's role as the global authority on animal health, highlighting its century-long history since 1924 in monitoring animal diseases, promoting science-based standards, and supporting Members to mitigate the socio-economic impacts of animal health threats. He described WOAH's governance structure, emphasising the role of the World Assembly of Delegates as the Organisation's highest decision-making body, the function of National Focal Points as technical liaisons supporting Delegates, and the contributions of the Council, Regional Commissions, Specialist Commissions, and the Director General. The presentation further explained the role of WOAH Reference Centres in diagnostics, quality assurance, training, and international scientific collaboration. In addition, Dr Letshwenyo provided an overview of WOAH's financing structure and introduced the Seventh Strategic Plan (2021–2025), with emphasis on strengthening Veterinary Services, improving data governance, and responding to Members' needs. The session provided participants with essential institutional context to support effective engagement with WOAH mechanisms and alignment with international standards in their roles as National Focal Points for Veterinary Laboratories. Dr Letshwenyo's presentation can be found here.

Key Points from the Discussion

- Veterinary laboratories should be headed by specialist laboratory diagnosticians and staffed with specialised personnel.
- Laboratories should only use validated methods, as only validated methods can facilitate international trade, and well-run laboratories providing validated tests are central to disease control.
- Laboratories should have good quality management systems that prevent the accidental release of micro-organisms into the environment.
- Given this responsibility, laboratory focal points should undergo continuous training in various aspects of laboratory work, and adherence of Members to WOAH standards remains key to accessing international livestock markets.

History of the WOAH National Focal Point Programme and Terms of Reference of WOAH National Focal Points for Veterinary Laboratories

Presented by Dr Patrick Bastiaensen, Regional Programme Officer, WOAH Sub-Regional Representation for Eastern Africa

Dr Patrick Bastiaensen delivered a presentation providing an overview of the evolution of WOAH National Focal Point training in Africa and a detailed explanation of the Terms of Reference for National Focal Points for Veterinary Laboratories. The presentation situated the current training within the broader history of WOAH capacity-building initiatives, noting that focal point trainings began in 2009 and progressively expanded to cover multiple technical domains. Veterinary Laboratories were formally recognised as a dedicated focal point category by the World Assembly of Delegates, leading to successive regional training cycles, including Cycle I (Harare, 2016), Cycle II (Tunis, 2018), and the ongoing Cycle III (Gaborone, 2025). This historical perspective highlighted the continuity and strategic intent of WOAH's investment in strengthening veterinary laboratory systems across Africa.

Key Points from the Presentation

- He highlighted the mandate and responsibilities of National Focal Points for Veterinary Laboratories as the primary technical contacts, operating under the authority of the WOAH Delegate.

- Highlighted core roles, including coordination of national laboratory networks, alignment with WOAH standards and guidelines, contribution to the standard-setting process, support to national capacity-building and training, and collaboration with WOAH Reference Centres and regional networks.
- The presentation outlined eligibility requirements for laboratory focal points, emphasising senior technical or managerial expertise, experience in quality management systems, and responsibility for biosafety and biosecurity oversight.
- His presentation provided a clear institutional framework and practical guidance to enable participants to effectively perform their functions as National Focal Points for Veterinary Laboratories.

Dr Patrick Bastiaensen's presentation can be accessed here.

WOAH Standard Setting Process for Laboratories

Presented by Prof Emmanuel Couacy-Hymann, President, WOAH Biological Standards Commission

Prof Emmanuel Couacy-Hymann, President of the Biological Standards Commission (BSC), delivered a detailed presentation on the WOAH standards-setting process, recent updates from the work of the BSC, and key outcomes of the 92nd WOAH General Session (2025). He explained the scientific, transparent, and participatory nature of the WOAH standards-setting mechanism, highlighting the roles of Members, National Focal Points, Reference Centres, Specialist Commissions, and global experts in the development and adoption of international standards. The presentation provided an overview of the WOAH Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, its structure, and its importance as a global reference for veterinary diagnostic laboratories and vaccine regulation.

Update on the work of the Biological Standards Commission – Main changes/resolutions emanating from the 2025 General Session

Presented by Prof Emmanuel Couacy-Hymann, President, WOAH Biological Standards Commission

Prof Couacy-Hymann further presented major technical updates adopted in 2025, including revisions to diagnostic methodologies, validation standards, biosafety and biosecurity terminology, and disease-specific chapters, notably on African swine fever, avian influenza, and antimicrobial susceptibility testing. He highlighted developments related to WOAH Reference Centres, including accreditation requirements, performance monitoring, laboratory twinning projects, and the expansion of global laboratory networks. The presentation concluded with an outline of the 2025–2026 BSC work programme, emphasising continued standardisation, harmonisation of diagnostic practices, strengthening laboratory quality management systems, and improved global collaboration to support resilient veterinary laboratory systems.

Key Points from the Presentation

- Major updates to African Swine Fever (ASF) standards highlight safety risks in "first-generation" vaccines, specifically their potential to revert to virulence. Stricter protocols for safety studies and control groups are now mandated to protect livestock health.
- All WOAH Reference Laboratories must now hold mandatory ISO 17025 accreditation for their specific disease-related frontline diagnostic tests. To support this major policy shift, the Commission has established a three-year deadline for compliance.
- Africa currently hosts only 21 of 350 global Reference Centres, highlighting a need for regional growth. The Laboratory Twinning Programme remains the primary tool for African labs to build expertise in priority diseases like PPR and Rabies.

- The *Terrestrial Manual* now clearly distinguishes "Biosafety" as the prevention of *unintentional* exposure or accidental release. "Biosecurity" refers to the specific controls implemented to prevent the *intentional* theft, misuse, or unauthorised access to pathogens.
- The upcoming agenda prioritises the creation of "Virtual Biobanks" and the development of new international Tuberculin standards. Efforts will also focus on expanding the global repository of WOAH-approved reference reagents for all Members.

Prof Emmanuel Couacy-Hymann's presentation can be found here

Pillar 1: Laboratory Sustainability

1. Laboratories' role in outbreak investigation, risk analysis, disease surveillance and international trade

Presented by Dr Ekta Patel, Scientist, International Livestock Research Institute (ILRI)

Through a pre-recorded video, Dr Ekta Patel, delivered a presentation on the critical role of veterinary laboratories in outbreak investigation, risk analysis, disease surveillance, and international trade, as well as on innovations in diagnostic technologies for animal health. She introduced ILRI's mandate, strategic direction, and One Health approach, highlighting its focus on epidemics and pandemics, food-borne diseases, and antimicrobial resistance at the human–animal–environment interface. She emphasised how laboratories serve as the scientific backbone of animal health systems by enabling early detection, confirmation of pathogens, outbreak source tracing, and evidence-based decision-making.

Key Points from the Presentation

- Veterinary laboratories are the foundation of effective outbreak detection, surveillance, response, and safe international trade.
- Timely, quality-assured laboratory data are critical for early warning, risk analysis, and informed decision-making.
- Investment in laboratory capacity and innovation directly strengthens health security, preparedness, and One Health outcomes.

Dr Patel's presentation can be accessed here

2. BioPREVAIL Initiative

Presented by Mr Zibusiso Masuku, Senior Biosafety & Biosecurity Officer, Africa Centres for Disease Control and Prevention (Africa CDC)

Mr Zibusiso Masuku presented on BioPREVAIL (Biological Preparedness and Resilience through Evolution and Innovation of Laboratories), focusing on the sustainability challenges of diagnostic laboratories and the need for innovative, scalable solutions to strengthen global health security. He highlighted that while diagnostic laboratories are central to disease detection, surveillance, and response, they are often expensive to build, operate, and maintain, making several existing laboratory models unsustainable; particularly in low- and middle-income countries. These sustainability gaps, he noted, undermine laboratory performance and increase risks related to biosafety, biosecurity, and potential misuse of pathogens.

The presentation introduced BioPREVAIL as a One Health security innovation ecosystem, designed to address laboratory sustainability through collaborative problem-solving, design sprints, and scalable innovations. Drawing on assessments of more than twenty high-containment laboratories across Africa, he outlined familiar challenges related to infrastructure design, utilities, engineering capacity, maintenance, and regulatory compliance. He emphasised that BioPREVAIL promotes context-appropriate laboratory designs, alternatives to high-cost traditional models, and the development of

communities of practice to support resilient, safe, and sustainable laboratory systems. The session underscored the importance of innovation, collaboration, and systems thinking in reducing biological risks while maintaining essential diagnostic capacity.

Key Points from the Presentation

- Diagnostic laboratories are essential to global health security, yet many are financially and operationally unsustainable, particularly in low- and middle-income countries, posing risks to biosafety and biosecurity.
- BioPREVAIL is a One Health–oriented innovation ecosystem designed to improve laboratory sustainability through collaborative problem-solving, design sprints, and scalable, context-appropriate solutions.
- High-containment laboratories in Africa face challenges related to infrastructure design, utilities, maintenance, certification, and engineering capacity, underscoring the need for alternative laboratory models.

Mr Masuku's presentation and more details can be found here

3. WOAH PVS Pathway Laboratory Missions and Veterinary Laboratory Focal Points' role

Presented by Dr Jennifer Lasley, Senior Programme Coordinator, WOAH Capacity Building Department

Through a pre-recorded presentation, Dr Jennifer Lasley's presentation focused on the Performance of Veterinary Services (PVS) Sustainable Laboratories Targeted Support. She emphasised that well-functioning and sustainably resourced veterinary laboratories are critical to national, regional, and global health security, economic stability, and safe trade. The presentation highlighted WOAH's vision of ensuring that Veterinary Services have access to quality diagnostic capacity through sustainable, well-managed laboratory networks.

Dr Lasley outlined how the PVS Sustainable Laboratories missions support Members through data-driven assessments, generating evidence to inform strategic planning, advocacy, and investment decisions. She explained the phased structure of the missions—pre-mission, mission, and post-mission—and described how comprehensive data collection is used to analyse laboratory demand, costs, governance, and resource needs. The presentation also introduced key outputs, including sustainability reports, visual dashboards, and advocacy tools, as well as complementary initiatives such as the Global Laboratory Leadership Programme (GLLP) and the WOAH eLearning platform, which aim to strengthen leadership, management, and technical competencies within veterinary laboratory systems.

Key Points from the Presentation

- PVS Sustainable Laboratories Targeted Support provides Members with evidence-based analyses to assess laboratory sustainability, optimise laboratory networks, and support advocacy and investment.
- The mission approach follows three structured phases (pre-mission, mission, post-mission) and generates practical outputs, including sustainability reports, data visualisations, and actionable recommendations.
- WOAH complements sustainability assessments with capacity-building initiatives, including the Global Laboratory Leadership Programme (GLLP) and a wide range of eLearning modules, to strengthen leadership, management, and emergency preparedness in veterinary laboratory systems.

The presentation and more details can be found here.

4. Regional analysis of PVS Information Systems reports (PVS IS)

Presented by Dr Caesar Lubaba, Programme Officer, WOAH Sub-Regional Representation for Southern Africa

Dr Caesar Lubaba presented a regional analysis of Performance of Veterinary Services (PVS) reports, with a particular focus on laboratory-related performance indicators in Africa under the World Organisation for Animal Health (WOAH) PVS Pathway. He explained that the PVS Pathway is WOAH's flagship, country-driven capacity-building framework designed to strengthen national Veterinary Services through structured evaluation, planning, and targeted support aligned with WOAH international standards.

Dr Lubaba highlighted Africa's strong engagement in the PVS Pathway, noting that forty-eight out of 52 African Members (92%) have benefited from PVS activities since 2016, primarily through evaluations and targeted support. Despite this high level of engagement, the analysis revealed persistent gaps in laboratory capacity, particularly in diagnostics, quality management systems, biosafety and biosecurity, and sustainable financing. For example, only 31% of African countries demonstrated minimum capacity (Level of Advancement 3) for access to laboratory diagnosis for animal diseases and zoonoses, while 46% remained at "some capacity" (Level 2). Similarly, just 12% of African countries showed minimum capacity in the use of formal Quality Management Systems (QMS) in public-sector veterinary laboratories. Dr Lubaba emphasised that targeted investments informed by PVS data are essential to improve disease surveillance, early warning, emergency preparedness, and safe trade across the region.

Key Points from the Presentation

- Since 2016, 92% of African WOAH Members (48 countries) have benefitted from the PVS Pathway activities, primarily engaged in Evaluation and Targeted Support,
- Africa leads globally in engagement and re-engagement in the PVS Pathway. Levels of Advancement range from 1 (no capacity) to 5, and countries are encouraged to reach at least Level 3 (minimum capacity) for laboratory-related critical competences.
- On average, Members in the Africa Region have demonstrated minimal capacity in 30% of PVS Critical Competences, according to their most recent PVS Evaluation, compared to 45% globally
- Only 31% of African countries have achieved minimum capacity Level of Advancement (LoA 3) for access to laboratory diagnosis for animal diseases, zoonoses, animal feed safety, and AMR surveillance, while 46% remain at Level of Advancement (LoA 2) (some capacity).
- Sustainability and biosafety limitations exist since although 29% of African countries reached minimum capacity in managing national laboratory systems, 42% still operate at some capacity, with insufficient funding and incomplete biosafety and biosecurity measures.
- PVS reports most commonly recommend strengthening laboratory staff training, expanding diagnostic capacity, implementing quality assurance systems, refurbishing, and equipping national laboratories, and strengthening inter-laboratory networks.
- Frequent laboratory-related PVS recommendations globally was to Implement Quality Assurance Systems and in Africa was to formalise collaboration between laboratories and ministries.

Dr Lubaba's presentation can be accessed here

5. PVS Laboratory Mission: Member Country experiences (Liberia, Sudan and Uganda)

Liberia's Experience

Presented by Dr Varney M. Kamara, Director, Central Veterinary Laboratory (CVL), Liberia

Dr Varney M. Kamara presented **Liberia's experience with the WOAH PVS Laboratory Mission (2021)**, highlighting the country's journey in strengthening its Central Veterinary Laboratory (CVL) within

a post-conflict and resource-constrained context. He noted that the 2021 PVS Laboratory Mission built upon earlier engagements, including the **PVS Evaluation (2013)** and **PVS Gap Analysis (2016)**, and was conducted virtually due to the COVID-19 pandemic marking the first fully virtual PVS Laboratory Mission.

The mission aimed to assess the physical, human, and financial resources of Liberia's veterinary laboratory system, evaluate its performance, and provide data-driven recommendations aligned with WOAH standard. He further described the benefits of the mission, including the development of a clear roadmap for laboratory strengthening, increased political visibility of animal health systems, strengthened One Health coordination, refurbishment of the Central Veterinary Laboratory through FAO support, and drafting of key legislative instruments. However, he also discussed ongoing challenges, including limited domestic funding, human resource shortages, delays in passing veterinary legislation, and digital connectivity constraints that affected the virtual mission process. The presentation concluded with reflections on lessons learned, including the need for hybrid mission approaches, stronger follow-up mechanisms, and tailored support for low resource.

Key Points from the Presentation

- Key improvements included CVL refurbishment, development of Standard Operating Procedures (SOPs), drafting of Animal Disease and Veterinary Laws, and strengthening of the One Health coordination platform.
- Major challenges included budgetary constraints, reliance on donor funding, limited skilled laboratory personnel, and delays in legislative approval.
- The virtual format enabled extended data analysis and visualisation but exposed digital infrastructure limitations, including low internet penetration (19%) and lack of on-site verification.
- Recommended improvements include stronger post-mission follow-up mechanisms, modular implementation toolkits for low-resource settings, and increased peer-to-peer collaboration within regional laboratory networks.

The presentation and more details can be found here.

Sudan's Experience

Presented by Ms Wafa Mohmmed Ahmed Attya Allah, WOAH National Focal Point for Veterinary Laboratories, Central Veterinary Research Laboratories, Sudan

Ms Wafa Mohmmed Ahmed Attya Allah presented Sudan's country experience with the PVS Laboratory Mission, focusing on the evaluation and strengthening of national veterinary laboratory systems within a complex socio-economic and security context. She highlighted Sudan's strategic importance in regional animal health due to its large livestock population estimated at over 110 million animals and its geographic position linking Africa and the Middle East, underscoring the need for strong veterinary services to support disease surveillance, food security, and international trade.

The presentation outlined Sudan's long-standing engagement with the World Organisation for Animal Health (WOAH), including multiple PVS missions conducted between 2009 and 2016, with the 2015 PVS Laboratory Mission serving as a critical milestone. Wafa described how the mission assessed laboratory capacity using the PVS Tool across human, physical, and financial resources; technical authority; stakeholder engagement; and access to markets.

She also discussed the key achievements and challenges and concluded by emphasising the value of the PVS Laboratory Mission as a catalyst for reform and a practical planning tool for strengthening veterinary laboratory systems.

Key Points from the Presentation

- Key achievements included the development of a national laboratory strategic roadmap, strengthened cold chain and sample transport systems, and increased focus on biosafety and quality assurance.
- Major challenges include political instability and armed conflict, funding limitations for state-level laboratories, retention of trained staff, and weak digital data-sharing infrastructure.
- Lessons learned emphasised the importance of accreditation, alignment with international standards to support trade, multisectoral collaboration, and continuous improvement through audits and reviews.
- Recommendations included stronger post-mission follow-up, provision of practical implementation tools with measurable milestones, tailoring recommendations to national contexts, and expanded regional exchanges and laboratory twinning programmes.

The presentation and more details can be found here.

Uganda's Experience

Presented by Dr Stella Acaye Atim, WOAH National Focal Point for Veterinary Laboratories, National Animal Disease Diagnostics and Epidemiology Centre (NADDEC), Uganda

Dr Stella Acaye Atim demonstrated how the PVS Laboratory Mission served as a strategic instrument for strengthening the national veterinary laboratory system within the broader PVS Pathway, which included engagements in 2007, 2011, 2015, and a follow-up in 2018. She explained that the 2015 PVS Laboratory Mission identified critical gaps in laboratory infrastructure, human resources, quality assurance, and information systems, while also revealing significant underutilisation of diagnostic capacity, estimated at approximately 25,000 tests per year. Scenario modelling showed that aligning laboratories with national disease control programmes could increase testing volumes to 50,000 tests annually through routine programmes and up to 500,000 tests through targeted initiatives such as brucellosis control.

Implementation of the mission's recommendations resulted in increased policy recognition of laboratories, higher budget allocations, improved cold chain systems, initiation of laboratory quality management systems and ISO 17025 accreditation processes, and strengthened intersectoral coordination, underscoring the importance of national ownership, sustained technical support, and regional collaboration for long-term laboratory system strengthening.

Key Points from the Presentation

- Uganda's laboratory system strengthening was guided by successive PVS Pathway engagements (2007, 2011, 2015, and 2018), with the 2015 PVS Laboratory Mission serving as a pivotal reform milestone.
- The mission identified key gaps in infrastructure, human resources, quality assurance, and laboratory information systems, while also highlighting significant underutilisation of laboratory capacity (~25,000 tests/year).
- Key lessons emphasised the importance of national ownership, continued technical follow-up support, laboratory twinning, and regional collaboration to sustain laboratory system improvements.

Dr Atim's presentation can be accessed here.

6. FAO Laboratory Mapping Tool

Presented by Mr Joshua Kimutai, Regional Laboratory Specialist, FAO Emergency Centre for Transboundary Animal Diseases (ECTAD)

Through a pre-recorded video, Mr Joshua Kimutai, presented the FAO Laboratory Mapping Tool (LMT) as a strategic, evidence-based instrument for assessing and guiding the development of veterinary laboratory systems. He explained that the LMT was originally developed in 2010 under the IDENTIFY

project to support systematic strengthening of veterinary laboratory capacity. The tool enables comprehensive assessment of laboratory capabilities across multiple operational dimensions, allowing countries to identify strengths, gaps, and priority actions for improvement.

Mr Kimutai described the structure of the LMT, highlighting the LMT-Core, which assesses laboratory capacity across seventeen categories and 108 subcategories, and its expansion into specialised modules, including LMT-Safety, LMT-AMR (part of the FAO-ATLASS tool), and the LMT-Biothreat module, which is currently being piloted. He demonstrated how the tool which is implemented through a structured Excel-based questionnaire uses a scoring system (1–4) to generate laboratory profiles, monitor progress over time, and produce visual summaries for analysis and advocacy. The presentation emphasised the LMT's role in supporting baseline assessments, progress monitoring, prioritisation of interventions, and evidence-based advocacy for sustainable laboratory investments at national and regional levels.

Key Points from the Presentation

- LMT-Core assesses laboratory capacity across seventeen categories and 108 subcategories, while additional modules include LMT-Safety (20 categories, ninety-eight subcategories), LMT-AMR (12 categories, forty-two subcategories), and a piloted LMT-Biothreat module.
- The tool measures strengths and gaps, establishes a baseline prior to interventions, and allows monitoring of laboratory performance over time through repeated assessments.
- Laboratories are scored on a 1–4 scale for each subcategory, and results are automatically aggregated into summaries and visual dashboards to support interpretation.
- LMT outputs support evidence-based prioritisation, planning, and advocacy, enabling countries to justify investments and guide laboratory development strategies.
- The tool generates a laboratory profile or "map," facilitating national and regional comparisons and supporting coordinated laboratory network strengthening.

Mr Kimutai's presentation can be accessed here.

7. Innovations in the lab: Emerging Diagnostic Technologies

Presented by Dr Ekta Patel, Scientist, International Livestock Research Institute (ILRI)

Through a pre-recorded presentation, Dr Patel discussed emerging diagnostic and surveillance technologies, including CRISPR-based tools, next-generation sequencing (whole-genome sequencing and metagenomics), portable sequencing platforms (e.g. Oxford Nanopore MinION), and environmental and animal-waste surveillance. Case studies from East Africa illustrated the application of these tools in detecting zoonotic pathogens and antimicrobial resistance across livestock, wildlife, and environmental interfaces. She also highlighted the growing role of digital tools and artificial intelligence, including machine-learning models for predicting Rift Valley fever outbreaks and mobile phone–based applications to support data collection and decision-making at field level. The presentation concluded by underscoring that investments in laboratory innovation, quality-assured diagnostics, and data integration are essential for timely outbreak response, safe trade, and strengthened One Health outcomes.

Key Points from the Presentation

- Innovative and field-adapted diagnostic technologies are increasingly necessary to address zoonotic, transboundary, and antimicrobial resistance threats.
- Genomic, digital, and AI-enabled technological tools enhance the speed, accuracy, and predictive capacity of surveillance systems.

This presentation can be accessed using this link.

PILLAR 1 - Group Discussion: Actions to improve sustainability of veterinary laboratory networks at different levels of influence

Moderated by Mr Zibusiso Masuku, Senior Biosafety & Biosecurity Officer, Africa Centres for Disease Control and Prevention (Africa CDC)

Building on the day's presentations on laboratory sustainability, the PVS Pathway, BioPREVAIL, and the FAO Laboratory Mapping Tool, participants worked in groups to brainstorm actions to improve the sustainability of veterinary laboratory networks at different levels of influence, and then reported back to plenary.

Using a simplified Design Thinking approach, participants worked in five country groups to identify and prioritise the most pressing challenges to the sustainability of veterinary laboratories, reframe them as problem statements, and develop practical and collaborative solutions, which were then presented back to plenary.

Key Outcomes

- Five priority sustainability challenges were identified: laboratory equipment maintenance, maintaining the quality of samples during transportation, commitment from leadership, instability of power supply, and supply chain management and shortages of laboratory supplies.
- Proposed solutions converged on a regional approach to the supply of reagents and consumables, for example through AU-PANVAC establishing sub-regional centres, supported by inter-laboratory collaboration and regional quality assurance of supplies.
- Staff training and continuous professional development, together with adherence to international standards and regular internal and external audits, were seen as key to sound equipment management and reliable results.
- Sustained engagement of policy makers, through advocacy, awareness creation and stronger technical leadership in proposal writing and budgeting, was identified as essential to secure leadership commitment and long-term financing for veterinary laboratories.

Pillar 2: Emergency Management and Biological Threat Reduction

Recap of Day 1 and Overview of Day 2

The second day opened with a recap of the first day's proceedings and an overview of the day's programme. The recap revisited the opening session and the presentations on WOAH standards, the laboratory sustainability sessions on the PVS Pathway, BioPREVAIL and the FAO Laboratory Mapping Tool, and the outcomes of the group discussion, which prioritised equipment maintenance, sample quality during transport, leadership commitment, power supply and supply chain management as key sustainability challenges. Participants were then introduced to the second pillar of the seminar on emergency management and biological threat reduction.

1. Evolving Threat Landscape for Laboratories and WOAH's Work on Emergency Management and Biological Threat Reduction

Presented by Mr Ian Peter Busuulwa, Project Officer – Biological Threat Reduction, WOAH Sub-Regional Representation for Eastern Africa

Mr Ian Peter Busuulwa presented an overview of the evolving threat landscape affecting veterinary laboratories and WOAH's work on emergency management and biological threat reduction. He emphasised that veterinary services now operate within an increasingly complex all-hazards environment that includes infectious and zoonotic diseases, climate-change disasters, technological and industrial accidents, agro-crime, agro-terrorism, cybersecurity threats, and conflict-related emergencies. The presentation highlighted the vulnerability of the animal sector due to factors such as

extensive animal–human interactions, wildlife reservoirs, complex supply chains, contaminated food and feed, and the environmental persistence of pathogens, noting that a considerable proportion of emerging and existing human infectious diseases are zoonotic. Mr Busuulwa further described WOAH's Biological Threat Reduction Strategy, structured around standards-setting, good governance, global disease intelligence, international cooperation, and advocacy, and showcased practical implementation through programmes such as the PVS Pathway, laboratory twinning, biosafety and biosecurity training, simulation exercises, emergency management initiatives, and the FIRABioT project. He concluded by stressing the need for sustained collaboration, national ownership, and integration of veterinary laboratories into cross-government emergency frameworks to effectively prevent, detect, and respond to biological threats.

Key Points from the Presentation

- Over 60% of existing human infectious diseases and at least 75% of emerging diseases originating from animals, underscoring the importance of early detection at the animal–human interface.
- Around 80% of agents considered potential bioterrorism threats are of animal origin, and a rising trend in reverse zoonoses (transmission of disease from humans to animals) was also noted.
- WOAH's Biological Threat Reduction Strategy focuses on five pillars: standards and expertise, good governance and One Health implementation, global disease intelligence, international cooperation, and advocacy and communication.
- Key operational tools include the PVS Pathway, biosafety and biosecurity standards, laboratory twinning, simulation exercises, and emergency management programmes, implemented through national, regional, and global initiatives such as FIRABioT.
- Strengthening laboratory resilience requires integration into national emergency frameworks, sustained capacity-building, effective risk communication, and strong collaboration between veterinary, public health, security, and international partners.

In the second part of his presentation, Mr Busuulwa provided an update on WOAH's work on emergency management and biological threat reduction, with a focus on the Fortifying Institutional Resilience Against Biological Threats (FIRABioT) project. He explained that the project aims to strengthen WOAH's own emergency response and to support Members, mainly in Africa, to respond to the deliberate release of animal pathogens, through four work streams: an incident management system, Member capacity, evidence-based guidance, and the dissemination of good practices. Nine countries are direct beneficiaries of the project, namely Algeria, Congo (Republic), Kenya, Madagascar, Malawi, Morocco, Namibia, Tanzania, and Zimbabwe, where activities such as biosafety training, CBPP and RVF diagnostics, legislation reviews, zoonotic contingency plans, and laboratory SOPs have been completed or are underway.

- Upcoming country-level activities include laboratory biosafety and biosecurity regulations (Madagascar), a risk communication strategy (Tanzania), disease simulation exercises (Zimbabwe, Morocco, Madagascar, and Tanzania), and bioinformatics and data management training (Namibia and Zimbabwe).
- Planned regional activities include a regional disease simulation exercise in English and French (Q1 2026), training on investigating suspicious biological events, biological waste management training with NICD (Africa CDC), and risk and crisis communication training for animal health emergencies.
- Participants were informed that WOAH would host the Global Conference on Biological Threat Reduction in Geneva from 28 to 30 October 2025.

The presentation and more details can be found here.

2. Biological risk management in conflict zones

Presented by Dr Hassen Belay Gelaw, Laboratory Technologist, African Union Pan African Veterinary Vaccine Centre (AU-PANVAC)

Dr Hassen Belay started by sharing about AU-PANVAC's mandate to promote the use of quality veterinary vaccines and diagnostic reagents in Africa and highlighted its international role as a collaborating and reference centre for veterinary vaccine quality control. He emphasised that laboratories operating in conflict-affected settings face heightened risks, including threats to personnel safety, laboratory security, cold chain integrity, supply chains, communication systems, and continuity of operations.

Using real-world security incidents near AU-PANVAC in Ethiopia, Dr Belay illustrated how conflict and civil unrest can disrupt laboratory operations and increase biological risks. He outlined AU-PANVAC's comprehensive Biorisk management framework, covering governance, biosafety, biosecurity, emergency preparedness, and business continuity. Practical response measures included strengthened physical security, remote monitoring systems, redundancy in power supply for high-containment laboratories, staff safety protocols, simulation exercises, and close coordination with security authorities. The presentation concluded with key lessons learned, stressing the importance of preparedness for non-traditional threats, stakeholder engagement, and contingency planning to ensure safe and continuous laboratory operations during conflict situations.

Key Points from the Presentation

- Conflict zones present high biological risks for laboratories, including staff insecurity, infrastructure damage, cold chain disruption, supply-chain breakdowns, and communication blackouts.
- During Emerging security incidents there is need for rapid risk assessment, strengthened physical security, CCTV monitoring, access control, and trained security personnel.
- Effective response in conflict settings requires strong collaboration with security authorities, clear staff safety protocols, evacuation preparedness, and regular simulation exercises.
- Key lessons emphasised the need to anticipate non-traditional threats, invest in minimal essential infrastructure, build partnerships with security stakeholders, and train staff for crisis and conflict scenarios.

The presentation and more details can be found here.

3. Cyberbiosecurity

Presented by Dr Kennedy Chepukosi, Cyberbiosecurity Expert and Lecturer, Technical University of Kenya / International Federation of Biosafety Associations (IFBA)

Dr Kennedy Chepukosi shared on Cyberbiosecurity, describing it as the emerging nexus between biology, cybersecurity, and biosecurity, with growing relevance for veterinary laboratories and animal health systems. He explained that increasing digitisation of laboratory operations through Laboratory Information Management Systems (LIMS), networked diagnostic equipment, cloud-based databases, and Internet-of-Things (IoT) devices has introduced new vulnerabilities that can be exploited by adversary to compromise biological materials, laboratory data, personnel safety, animal welfare, and environmental protection. Using case studies and global statistics, the presentation demonstrated that cyberattacks are frequent and increasingly target health and life-science sectors, posing risks to the bioeconomy, research integrity, and public health security.

Dr Chepukosi outlined the threat landscape, identifying vulnerabilities across cyber-physical systems (e.g. access control, ventilation systems), cyber-material systems (e.g. inventory and storage conditions), cyber-transport systems (e.g. chain-of-custody records), and cyber-personnel interfaces (e.g. personal devices and insider threats). He introduced a structured Cyberbiosecurity risk

assessment framework, emphasising identification of assets, threats, vulnerabilities, and mitigation measures, alongside incident response planning, and regular reassessment. The presentation concluded by highlighting the importance of training, awareness, leadership engagement, and institutional policies such as BYOD policies, incident response plans, and alignment with international cybersecurity frameworks—to reduce risks and strengthen laboratory resilience in an increasingly digital environment.

Key Points from the Presentation

- Increasing reliance on networked laboratory equipment, LIMS, cloud platforms, and IoT devices create new attack vectors for cyber-enabled biological risks.
- Cyber vulnerabilities can compromise the integrity of biological materials and data, threaten laboratory worker safety and animal welfare, and undermine public health and trade.
- Effective Cyberbiosecurity requires risk and threat assessments, clear incident response plans, staff training, and continuous review of mitigation strategies.
- Building cyber resilience depends on institutional policies, leadership engagement, and alignment with recognised cybersecurity frameworks (e.g. ISO 27001, NIST).

The presentation and more details can be found here.

4. Risk Management along the 'pathogen value chain'

Presented by Dr Keith Hamilton, Senior Programme Manager, WOAH Emergency Preparedness and Resilience Department

Through a recorded presentation Dr Keith Hamilton presented on Laboratory Biological Risk Management, focusing on applying a risk-based approach along the entire pathogen value chain. He explained that while laboratory biosafety and biosecurity have traditionally focused on activities within laboratory facilities, significant biological risks also arise outside the laboratory, including during sample collection in the field, sample transport, handling, testing, storage, and final destruction. He introduced the concept of the "pathogen value chain" to describe this continuum of activities and highlighted the need for risk management measures that extend beyond the laboratory environment.

Dr Hamilton reviewed the evolution of international biosafety and biosecurity guidance, noting the shift since around 2015 from prescriptive rules to a flexible, risk-based approach, as reflected in WOAH and WHO guidance. He presented findings from a 20-year international review (2001–2021) of laboratory-acquired infections and pathogen escapes conducted by WOAH in collaboration with WHO and Chatham House, which showed substantial underreporting, a strong reporting bias towards countries with formal reporting systems, and that most incidents resulted from human error or procedural deficiencies, often in BSL-2 laboratories. He also introduced the Biosafety Research Roadmap, which identified critical gaps in the scientific evidence underpinning commonly used risk mitigation measures, and called for targeted research and improved reporting systems and concluded by emphasising the urgency of adopting biological risk management across the entire pathogen value chain to improve safety, transparency, and resilience in animal health systems.

Key Points from the Presentation

- Biological risks occur along the entire pathogen value chain, from sample collection and transport to laboratory testing, storage, and destruction not only within laboratories.
- A global review of laboratory-acquired infections and pathogen escapes (2001–2021) revealed significant underreporting, with most reported incidents linked to human error or procedural weaknesses, particularly in BSL-2 laboratories.
- The Biosafety Research Roadmap identified major evidence gaps supporting existing biosafety and biosecurity measures, highlighting the need for targeted research and practical guidance where evidence is limited.

- Effective biological risk management requires training in risk analysis, learning from incidents, stakeholder engagement, and application of controls across laboratory and non-laboratory settings.

The presentation and more details can be found here.

5. Emergency Management: Member Country Experiences (Malawi, Mozambique, Nigeria, South Sudan)

Malawi's Experience

Impacts of Cyclone Freddy on Livestock and Veterinary Laboratory Response Presented by Dr MacDonald Chisale, WOAH National Focal Point for Veterinary Laboratories, Central Veterinary Laboratory, Malawi

Dr MacDonald Chisale presented Malawi's experience on the impacts of Cyclone Freddy on livestock and veterinary laboratory response. He explained that the cyclone brought extreme rainfall—equivalent to six months' precipitation within six days resulting in widespread flooding, destruction of infrastructure, displacement of communities, and significant livestock losses. The disaster affected multiple districts and led to the death of over 300,000 livestock, with many more injured and large areas of farmland destroyed. These impacts disrupted veterinary service delivery, including sample collection and transportation, and increased the vulnerability of animals to disease.

The presentation further outlined how prolonged flooding and stress conditions led to increased disease risks. Laboratory investigations confirmed heavy parasite burdens, guiding response interventions. Dr Chisale described the coordinated response involving laboratory personnel and stakeholders, which included field sample collection, deworming, vaccination campaigns (for diseases such as Newcastle disease, LSD, and rabies), wound management, and vector control measures. He concluded by emphasising the need for strengthened emergency preparedness, including dedicated emergency funding, increased staffing, availability of rapid diagnostic tools, and enhanced multisectoral collaboration to improve resilience of veterinary laboratory systems during disasters.

Key Points from the Presentation

- Extreme weather conditions from Cyclone Freddy increased the risk of vector-borne, parasitic, bacterial, and viral diseases, including Lumpy Skin Disease and Response measures included vaccination campaigns, wound management, vector control, and field-based laboratory support.
- Flooding affected sample collection, transport, and laboratory operations, limiting timely diagnostics and response. Laboratory findings confirmed heavy parasite infestations, guiding targeted interventions such as deworming and treatment.
- Key lessons highlighted the importance of multisectoral collaboration, emergency preparedness, and resource mobilisation in Emergency management.
- Recommendations included establishing emergency budgets, increasing staffing, and ensuring availability of rapid diagnostic kits and laboratory supplies.

The presentation and more details can be found here.

Mozambique's Experience

Mozambique experience in Managing the Cyclone Freddy in early 2023 Presented by Dr Iolanda Vieira Anahory Monjane, WOAH National Focal Point for Veterinary Laboratories, Central Veterinary Laboratory, Mozambique

Dr Iolanda Monjane shared about Mozambique's experience in managing the impacts of Cyclone Freddy (2023) on animal health systems and veterinary laboratory operations. She highlighted the country's high vulnerability to climate shocks due to geographic, environmental, and socio-economic

factors, which amplified the cyclone's effects. The disaster caused widespread flooding, destruction of infrastructure, displacement of communities, and significant disruption to livelihoods and livestock systems. These impacts increased the risk of animal disease outbreaks, particularly due to post-flood animal mixing and weakened surveillance systems.

Her presentation detailed the national response, including a recovery plan focused on livestock health support, vaccination campaigns, distribution of veterinary medicines, and rehabilitation of treatment infrastructure. Veterinary laboratories played a critical role in outbreak preparedness and response, supported by partners such as FAO/IAEA through the VETLAB programme, which provided diagnostic equipment, reagents, and technical expertise. Laboratories applied molecular diagnostic tools (e.g., PCR and ELISA) for priority diseases and collaborated with public health systems under a One Health framework. However, laboratory operations were significantly affected by infrastructure damage, logistical disruptions, and shifting priorities towards human health emergencies.

Key Points from the Presentation

- Mozambique is highly vulnerable to climate shocks due to geographic, environmental, and socio-economic factors, which amplified the impact of Cyclone Freddy on livestock and laboratory systems.
- Through FAO/IAEA VETLAB support, laboratory response was strengthened, enabling use of PCR and ELISA for diseases such as ASF, FMD, RVF, and PPR.
- Strong One Health collaboration between veterinary and public health sectors supported surveillance, diagnostics, and outbreak response.
- Laboratory systems were affected by infrastructure damage, logistical constraints (roads, power, water), and shifting priorities towards human health emergencies.
- Key recommendations to strengthen Laboratory preparedness; pre-positioning mobile laboratories and rapid diagnostic tools, stockpiling critical supplies and strengthening supply chains, using digital systems (e.g., LIMS) for data continuity, enhancing communication systems (satellite/radio), Strengthening integration of veterinary laboratories into national disaster preparedness frameworks, and Expanding field-based diagnostics and training personnel.

The presentation and more details can be found here.

Nigeria's Experience

Emergency management : Nigeria *Country Experiences*
Presented by Dr Pam Luka, WOAH National Focal Point for Veterinary Laboratories, National Veterinary Research Institute (NVRI), Vom, Nigeria

Dr Pam Luka presented Nigeria's experience in emergency management of animal diseases, highlighting the role of policy frameworks, laboratory systems, and coordinated response mechanisms in managing major outbreaks. He outlined the country's legal and institutional framework, including the Animal Disease Control Act (2022), which supports surveillance, disease notification, biosecurity, and control of transboundary animal diseases and zoonoses. The presentation emphasised how Nigeria has strengthened its preparedness and response systems through routine surveillance, wildlife monitoring, and enforcement of disease control measures.

Dr Luka illustrated these systems through case studies of major outbreaks, including Highly Pathogenic Avian Influenza (HPAI), African Swine Fever (ASF), and COVID-19. The presentation also highlighted the role of the National Veterinary Research Institute (NVRI) as a central reference laboratory within a broader national laboratory network. Dr Luka concluded by emphasising the importance of One Health coordination, strengthened laboratory networks, and sustained investment in surveillance, workforce development, and data systems to improve emergency preparedness and response.

Key Points from the Presentation

- Nigeria's emergency management is guided by strong legal and policy frameworks, including the Animal Disease Control Act (2022), supporting surveillance, biosecurity, and disease control.
- The HPAI outbreak (2006–2008) was successfully controlled through improved diagnostics, capacity building, and farmer compensation schemes.
- The ASF outbreak (2019–2020) revealed a high seroprevalence (31%) and significant socio-economic impact, affecting over 7,000 stakeholders, and required intensified surveillance and stakeholder engagement.
- During COVID-19, veterinary laboratory capacity was leveraged for public health response, including activation of BSL-3 facilities for regional diagnostics.
- Establishment of a national laboratory network led by NVRI, including outstation labs, veterinary teaching hospitals, and private laboratories and Implementation of a One Health approach through joint emergency operations centres and collaboration with public health institutions.
- Key recommendations included Strengthen laboratory networks and quality management systems, improve biosafety and biosecurity, enhance data management systems, and Implement priority animal health surveillance programmes.

The presentation and more details can be found here.

South Sudan's Experience

Presented by Mr David Panther Kelei, WOAH National Focal Point for Veterinary Laboratories, Central Veterinary Laboratory, South Sudan

Mr David Panther Kelei presented South Sudan's experience in emergency management within a fragile, conflict-affected context, highlighting the significant impact of prolonged insecurity on veterinary laboratory systems and animal health services. He highlighted that ongoing conflict has severely constrained veterinary service delivery, limiting funding, damaging laboratory infrastructure, and disrupting disease surveillance systems. The Central Veterinary Laboratory (CVL), as the national reference laboratory, operates under challenging conditions with limited resources, reduced staffing, and restricted access to affected regions.

The presentation outlined how South Sudan has adapted its emergency response through collaboration with international and humanitarian partners such as FAO, ICRC, and non-governmental organisations. These partnerships have supported service delivery in both conflict and non-conflict areas, including sample collection, logistics, and training. The CVL has also contributed to capacity building by hosting trainees from affected areas and engaging in One Health initiatives, including antimicrobial resistance (AMR) planning. Despite these efforts, major challenges remain, including funding constraints, high staff turnover, limited infrastructure, and weak surveillance systems. Mr Kelei emphasised the need for stronger regional collaboration, resource mobilisation, and the establishment of functional laboratory networks to improve resilience and emergency response capacity.

Key Points from the Presentation

- Ongoing conflict has significantly affected veterinary laboratory operations, including Destruction of laboratory infrastructure, Limited funding due to prioritisation of security, Disruption of disease surveillance and Displacement and loss of skilled personnel.
- Emergency response relies heavily on international and humanitarian partners (e.g., FAO, ICRC, NGOs) for logistics, access, and service delivery.
- Key challenges of emergence response included Funding constraints, High staff turnover, Limited infrastructure, and Shortage of skilled professionals.
- Key recommendations included Strengthen regional collaboration and partnerships, Adoption of a One Health and multisectoral approach, Regional collective Resource mobilisation and well-coordinated and strengthened laboratory networks.

The presentation and more details can be found here.

PILLAR 2 - Group Discussion: Mitigation and Response Strategies

Moderated by Dr Kennedy Chepukosi, Cyberbiosecurity Expert and Lecturer, Technical University of Kenya / International Federation of Biosafety Associations (IFBA)

Following the presentations on the evolving threat landscape and the country experiences in emergency management, participants worked in groups to brainstorm possible mitigation measures to emerging biological threats and laboratory emergency management strategies, including the integration of veterinary laboratories into existing national emergency frameworks, and then reported back to plenary.

The discussion was built around a fictitious scenario, the “Rift Storm Crisis” in the region of Narianda, in which a national veterinary reference laboratory faced four overlapping threats: an unknown zoonotic outbreak with Rift Valley fever-like symptoms following severe flooding; escalating armed conflict around the laboratory, which was handling samples potentially containing high-risk pathogens; an earthquake that damaged roads, power lines and the laboratory’s cold storage and containment systems; and a suspected cyberattack targeting the pathogen inventory and sample tracking systems, with partial genomic data of the pathogen leaked online.

Working in groups, participants explored how a laboratory would respond to such a multi-layered crisis combining conflict, natural disaster and a cyberbiosecurity incident, considering immediate response measures, cyberbiosecurity, multisectoral coordination, regional and international support, and longer-term preparedness.

Key Outcomes

- Immediate response should centre on activating existing contingency and emergency preparedness plans, securing the facility and biological materials with the support of security forces, and protecting digital systems by isolating networks, changing credentials and access permissions, and engaging cybersecurity expertise.
- Cyberbiosecurity can be strengthened even with limited infrastructure through basic cyber hygiene, including multi-factor authentication, avoiding personal accounts for official business, staff awareness, and redundant digital systems for emergencies.
- Preparedness requires all-hazards contingency plans that are regularly updated, tested through multi-stakeholder simulation exercises, backed by dedicated disaster management funding, and linked to national disaster management and civil protection structures, including communities, traditional and religious leaders, and security forces.
- Regional and international mechanisms, such as reference laboratories for confirmatory testing, the supply of reagents and consumables, training, remote expertise, and logistical support for sample shipment, underpinned by WOAH standards, are critical when national capacity is overwhelmed.

6. Laboratory Visit

Coordinated by Dr Caesar Lubaba, Programme Officer, WOAH Sub-Regional Representation for Southern Africa

A laboratory field visit was conducted as part of the training programme, with participants visiting the Botswana Vaccine Institute (BVI) and the Botswana National Veterinary Laboratory (BNVL). The visit participants with practical insights into laboratory operations, vaccine production, diagnostic systems, and regional support mechanisms.

Botswana Vaccine Institute (BVI)

The visit to the Botswana Vaccine Institute (BVI) provided insights into its role as a regional leader in veterinary vaccine production and a reference laboratory for foot-and-mouth disease (FMD). It was

noted that BVI produces vaccines for major livestock diseases including FMD, anthrax, blackleg, contagious bovine pleuropneumonia (CBPP), and peste des petits ruminants (PPR). In addition, BVI supports Member States through disease investigation, vaccine design and supply, and post-vaccination quality assurance to ensure effectiveness. Its long-term vision is to become a centre of excellence in disease control, supported by ongoing expansion and increasing regional engagement

This support includes vaccine formulation and supply, technical guidance on vaccination campaigns, and post-vaccination quality assurance to monitor vaccine effectiveness. The institute also promotes regional collaboration through expert exchange programmes, specialist visits, and diagnostic capacity-building initiatives.

Participants were informed of key challenges in vaccine production, particularly the need for continuous vaccine matching to address variations in circulating serotypes, which requires frequent adjustments in vaccine formulation. The visit concluded with a guided tour of the production process line, allowing participants to observe operational workflows from non-viral to viral production areas. Ongoing infrastructure expansion at BVI was highlighted as a significant development that will strengthen vaccine manufacturing capacity and benefit the African region. Member States were encouraged to submit FMD samples for virus characterisation to better understand circulating strains and improve vaccine matching.

Botswana National Veterinary Laboratory (BNVL)

At BNVL, participants learned about the laboratory's role in diagnosing transboundary animal diseases using a range of advanced diagnostic methods, many of which are ISO-accredited. The laboratory plays a vital role in safeguarding Botswana's livestock industry, particularly the beef export sector, which is a key contributor to the national economy. Given Botswana's vulnerability to transboundary animal diseases from neighbouring countries, BNVL's diagnostic services support early detection, prevention planning, and implementation of effective disease control and early warning systems.

Discussions further emphasised that the cost-effectiveness of advanced molecular diagnostics, such as sequencing, depends on sample volume, workflow efficiency, and availability of funding. Furthermore, the BNVL currently functions primarily as a national reference laboratory focused on diagnostics and service delivery, but it has opportunities to expand into research and development activities to enhance innovation and regional scientific contribution.

Notable Observations

- **BVI:**
    - Future strategic opportunities identified for BVI included diversification of animal health products, expansion into human pharmaceutical markets, private-sector market growth, geographic expansion across Africa, and increased investment in research and development.
    - Ongoing infrastructure expansion is expected to enhance regional vaccine production capacity.
- **BNVL:**
    - Participants observed that the Biosafety Level 3 (BSL-3) laboratory was non-functional due to maintenance constraints, limiting high-containment diagnostic work.
    - Sample reception areas require clearer physical separation to enhance biosafety compliance.
    - Participants noted that laboratory personnel were highly skilled and knowledgeable, and the facility can host bench-level technical training for veterinary laboratory staff

from neighbouring countries upon request and the laboratory can host bench-level training for neighbouring countries upon request.

- BNVL also provides technical training and mentorship programmes to Member States to strengthen regional laboratory capacity.

Recap of Day 2 and Laboratory Visit Debrief

Facilitated by Dr Caesar Lubaba, Programme Officer, WOAH Sub-Regional Representation for Southern Africa

The third day opened with a recap of the second day's proceedings and a debrief on the laboratory visit, whose observations are reflected above. The recap highlighted that biological threats today are multidimensional, blending natural outbreaks, cyber risks, and conflict scenarios, and that multisectoral collaboration, One Health implementation, and flexible, risk-based approaches are essential to building resilient laboratory systems. It further emphasised that the integration of veterinary laboratories into national disaster and emergency frameworks is critical for a timely and coordinated response.

7. Partner Initiatives on Emergency Management and Biological Threat Reduction

African Union Pan African Veterinary Vaccine Centre (AU-PANVAC)

Presented by Dr Hassen Belay Gelaw, Laboratory Technologist, African Union Pan African Veterinary Vaccine Centre (AU-PANVAC)

Dr Hassen Belay Gelaw presented on AU-PANVAC's initiatives in emergency management and biological threat reduction, highlighting efforts to strengthen biosafety, biosecurity, and laboratory resilience across Africa. He emphasised capacity building through strategic partnerships, including training in biorisk management, biosafety, biosecurity, and safe shipment of infectious materials. The presentation also outlined the implementation of systems such as the Pathogen Asset Control System (PACS) and the development of a new AU-PANVAC laboratory facility, expected to enhance regional laboratory capacity and training. Additionally, AU-PANVAC's role in One Health responses, including COVID-19 diagnostics and support for vaccine production, was highlighted. The presentation concluded by noting ongoing challenges such as limited funding, infrastructure gaps, and the need for stronger regional coordination.

Key Points from the Presentation

- AU-PANVAC strengthened biorisk management through partnerships and training in biosafety, biosecurity, and infectious material handling.
- Implementation of PACS improved tracking and control of biological agents in laboratories.
- Construction of a new facility (expected by 2028) will enhance laboratory capacity, biosafety, and training functions.
- Key challenges include limited funding, inadequate infrastructure, political instability, and the need for stronger regional coordination.

The presentation and more details can be found here.

Africa Centres for Disease Control and Prevention (Africa CDC)

Presented by Mr Zibusiso Masuku, Senior Biosafety & Biosecurity Officer, Africa Centres for Disease Control and Prevention (Africa CDC)

Mr Zibusiso Masuku presented the Africa Centres for Disease Control and Prevention Biosafety and Biosecurity Initiative, outlining its strategic approach to strengthening Biorisk management systems across Africa. He highlighted the development of a continental framework launched in 2019, followed by a five-year strategic plan (2021–2025) focusing on governance, capacity building, certification, and

institutional strengthening. The initiative has established regional Centres of Excellence, technical working groups, and training and certification programmes to build a skilled biosafety workforce. Key achievements include the operationalisation of regional training programmes, certification of biosafety professionals, and progress in developing and domesticating legal and regulatory frameworks. The presentation demonstrated the importance of coordinated regional efforts in enhancing laboratory safety, managing high-risk pathogens, and strengthening national and regional laboratory systems.

Key Points from the Presentation

- The initiative focuses on strengthening biosafety and biosecurity through legal frameworks, technical working groups, and regional coordination mechanisms.
- Establishment of regional Centres of Excellence and training programmes has supported certification of biosafety professionals and capacity building across Africa.
- Implementation of regulatory and certification frameworks aims to improve oversight of institutions managing high-risk pathogens.
- Key achievements include five operational regional technical working groups, more than 315 certified professionals, three operational Centres of Excellence, four certified institutions, and progress in domesticating biosafety and biosecurity frameworks in Member States.
- The end-of-phase review found that sustainability remains the largest unresolved challenge, with continued reliance on external funding and inconsistent post-training support and institutional integration.
- The Regional Centres of Excellence for Biosafety and Biosecurity are hosted by NICD/NHLS (Johannesburg), the National Public Health Laboratory (Dar es Salaam), and Institut Pasteur de Dakar, and have reached more than 1,000 participants from over 45 countries.

This presentation and more details can be found here.

The presentation on the Regional Centres of Excellence can be found here.

Food and Agriculture Organization of the United Nations

Presented by Mr Joshua Kimutai, Regional Laboratory Specialist, FAO Emergency Centre for Transboundary Animal Diseases (ECTAD)

Mr Joshua Kimutai presented the role of the Food and Agriculture Organization of the United Nations in emergency management and biological threat reduction, emphasising it is One Health and Good Emergency Management Practice frameworks. He explained that FAO supports countries across the full emergency cycle preparedness, detection, response, and recovery through capacity building, surveillance strengthening, and coordinated response mechanisms. The presentation highlighted key FAO tools, including the Laboratory Mapping Tool (LMT) and its modules (safety and biothreat), which are used to assess laboratory capacity and guide improvements in biosafety, biosecurity, and biorisk management.

Mr Kimutai also outlined FAO's role in establishing and supporting regional laboratory and epidemiological networks across Africa, such as RESOLAB, RESEPI, and the East African Regional Laboratory Network. These networks facilitate coordination, surveillance, and data sharing. He provided practical examples of FAO's impact, including coordinated PPR vaccination campaigns that resulted in a significant reduction in outbreaks, and cross-border surveillance initiatives for African swine fever that improved outbreak tracing and control. He concluded by emphasising FAO's contribution to long-term capacity building, multisectoral collaboration, and strengthening of laboratory systems to effectively manage biological threats.

Key Points from the Presentation

- FAO supports countries across the entire emergency management cycle (preparedness, detection, response, and recovery) using a One Health approach.

- Development and application of tools such as the Laboratory Mapping Tool (LMT) and its modules (safety and biothreat) to strengthen biosafety, biosecurity, and laboratory capacity.
- Establishment and support of regional laboratory and epidemiological networks (e.g., RESOLAB, RESEPI, EARLN) to enhance surveillance, coordination, and information sharing.
- Demonstrated impact through disease control initiatives, including reduced PPR outbreaks through vaccination campaigns and improved ASF surveillance via cross-border coordination.

This presentation and more details can be found here.

Pillar 3: Laboratory Capacity Building and Laboratory Networking

1. WOAH Reference Centres and the Network of Expertise: role, rights, and commitments

Presented by Dr Patrick Bastiaensen, Regional Programme Officer, WOAH Sub-Regional Representation for Eastern Africa

Dr Patrick Bastiaensen presented an overview of WOAH Reference Centres and the global Network of Expertise, highlighting their roles, responsibilities, and contributions to strengthening veterinary laboratory capacity worldwide. He explained that WOAH Reference Centres consist of Reference Laboratories and Collaborating Centres, which provide scientific leadership, specialised expertise, and technical support to WOAH Members in disease diagnosis, surveillance, and control; Outlining the functions of these centres, including the development and validation of diagnostic methods, provision of reference materials, training of laboratory personnel, and coordination of international laboratory networks.

He also noted that as of 2025 WOAH hosts 270 Reference Laboratories covering 109 diseases or topics across thirty-nine countries and 80 Collaborating Centres across thirty-six specialties in thirty-three countries. He further discussed the expectations for laboratories seeking designation as WOAH Reference Laboratories, including strong technical capacity, quality assurance systems, biosafety and biosecurity standards, and active participation in international collaboration. The presentation concluded by emphasising the importance of expanding the network in Africa to support regional disease control priorities and enhance global animal health surveillance.

Key Points from the Presentation

- As of 2025, the WOAH network includes 270 Reference Laboratories covering 109 diseases/topics in thirty-nine countries and 80 Collaborating Centres across thirty-six specialties in thirty-three countries.
- Reference Laboratories must maintain strong quality assurance systems, biosafety and biosecurity standards, qualified personnel, and the capacity to receive and analyse international samples.
- There is a continued need to expand Reference Laboratories in Africa, particularly for priority diseases such as Peste des petits ruminants (PPR), rabies, and animal trypanosomiasis, to strengthen regional disease control and surveillance systems.

The presentation and more details can be found here.

2. Overview of WOAH Twinning Programme and Veterinary Laboratory Focal Points' role

Presented by Dr Mariana Marrana, Programme Manager – Laboratory Twinning, WOAH Preparedness and Resilience Department

Through a pre-recorded presentation, Dr Mariana Marrana shared about the WOAH Laboratory Twinning Programme and highlighted the role of Veterinary Laboratory National Focal Points in supporting its implementation. She explained that the programme, established in 2006, is a solidarity-based technical assistance initiative designed to strengthen veterinary laboratory capacity in underserved regions through partnerships between WOAH Reference Centres (parent laboratories) and candidate laboratories, typically national reference laboratories. The programme focuses on knowledge transfer, training, and capacity development, with projects implemented over two to three years and usually funded either through donor grants or through self-funded arrangements. She emphasised that twinning projects are not intended to finance infrastructure or equipment but rather to enhance technical expertise and compliance with WOAH standards.

The presentation highlighted the global and regional impact of the programme, noting that one hundred projects have been completed globally, sixteen are ongoing, and twenty-four new WOAH Reference Laboratories or Collaborating Centres have been designated as outcomes of twinning projects. Africa has received the largest share of projects, with forty-three completed twinning projects, seven ongoing projects, and four new reference centres established in Botswana, Egypt, Senegal, and Namibia. Dr Marrana highlighted the most common disease areas addressed through twinning in Africa, including avian influenza, Newcastle disease, rabies, brucellosis, viral haemorrhagic fevers, foot-and-mouth disease, and peste des petits ruminants. She also outlined key challenges affecting implementation, such as staff turnover, the need for adequate baseline laboratory capacity, and the importance of aligning project topics with national priorities and available funding.

Key Points from the Presentation

- Africa has received the largest share of twinning initiatives, with forty-three completed projects, seven ongoing projects, and four new reference centres established in Botswana, Egypt, Senegal, and Namibia.
- Key challenges affecting project success include staff turnover, mismatches between funding priorities and country needs, insufficient baseline laboratory capacity, and sustainability after project completion.
- Veterinary Laboratory National Focal Points play a vital role in identifying national training needs, coordinating laboratory capacity-building initiatives, disseminating calls for participation, and preparing proposals for twinning projects.
- The twinning application process involves four main steps: expression of interest to WOAH, development of a project proposal, review by the WOAH Biological Standards Commission, and finalisation through contract signing before project implementation.

The presentation and more details can be found here.

3. From Laboratory Twinning Candidate Laboratory to WOAH Reference Laboratory for CBPP: setting and achieving goals (Botswana)

Presented by Dr Leruo Keokilwe, Acting Head and WOAH National Focal Point for Veterinary Laboratories, Botswana National Veterinary Laboratory (BNVL)

Dr Leruo Keokilwe presented Botswana's experience in strengthening veterinary laboratory capacity through the WOAH Laboratory Twinning Programme, describing a transformative journey from limited diagnostic capacity to becoming a WOAH Reference Laboratory for Contagious Bovine Pleuropneumonia (CBPP). He contextualised the presentation with the 1995 CBPP outbreak, which severely affected Botswana's cattle industry and prompted the government to implement a stamping-out policy in 1996. This intervention led to the culling of approximately 320,000 cattle at a compensation cost of about US$97.5 million. At the time, Botswana faced significant diagnostic limitations, relying on external laboratories for confirmation. Following these interventions, the country achieved CBPP-free status in 1997, but challenges in laboratory performance remained.

Dr Keokilwe explained that Botswana initiated a structured laboratory capacity-building process, including a pre-twinning and subsequent WOAH Laboratory Twinning Project with the Istituto Zooprofilattico Sperimentale (IZS) Teramo between 2008 and 2010. This collaboration significantly enhanced BNVL's diagnostic and surveillance capacity through the introduction of advanced techniques such as PCR, culture and isolation of pathogens, and production of CBPP diagnostic reagents. Continued investment in infrastructure, equipment, and human resource development enabled BNVL to be designated as a WOAH Reference Laboratory for CBPP in 2012.

Key Points from the Presentation

- The WOAH Laboratory Twinning Project between BNVL and IZS Teramo introduced new diagnostic capabilities, including culture and isolation methods, PCR testing, and the production of CBPP antigen for complement fixation tests (CFT).
- BNVL developed the capacity to organise proficiency testing (ring trials) and strengthened national serological surveillance systems for CBPP due to the twinning programme.
- As a result of these improvements, BNVL was designated a WOAH Reference Laboratory for CBPP in 2012 and later coordinated regional scientific networks on CBPP.
- Remaining challenges include sustaining diagnostic reagent production, maintaining proficiency testing activities, improving research output, and retaining skilled personnel required to support the reference laboratory functions.

The presentation and more details can be found here.

4. Regional Laboratory Networks

Presented by Dr Chenai Sipiwe Majuru, WOAH National Focal Point for Veterinary Laboratories (Zimbabwe), SADC Laboratory Sub-Committee

Dr Chenai S. Majuru presented on the importance of regional laboratory networks in strengthening veterinary diagnostic systems and improving disease surveillance and response in the Southern African region highlighting how laboratory networking systems connect multiple laboratories, instruments, and data management platforms to facilitate information sharing, centralised management, and coordinated diagnostic activities.

She emphasised the role of laboratory networks in promoting quality assurance, standardisation, and harmonisation of laboratory practices across countries. Dr Majuru further highlighted that inter-laboratory collaboration, proficiency testing, and laboratory twinning initiatives support capacity building, knowledge exchange, and resource sharing. The presentation concluded by stressing that the establishment of WOAH-recommended National Veterinary Laboratory Networks, together with regional platforms such as COMESA SPS laboratory networks, will strengthen collaboration across animal, plant, human, and environmental health sectors, thereby supporting the One Health approach to disease surveillance and control.

Key Points from the Presentation

- Networking promotes quality assurance and standardisation, including adoption of ISO 17025 quality management systems and accreditation through Southern African Development Community Accreditation Service (SADCAS).
- Implementation of Laboratory Information Management Systems (LIMS), such as SILAB, facilitates data sharing and coordination among laboratories in the region.
- Regional collaboration initiatives such as the COMESA SPS Laboratory Network enhance cooperation among laboratories working in animal, plant, human, and environmental health sectors.
- Establishment of WOAH-recommended National Veterinary Laboratory Networks, integrating government, private, and commodity-based laboratories, will further strengthen regional diagnostic capacity and collaboration.

The presentation and more details can be found here.

PILLAR 3 - Group Discussion: Strengthening Laboratory Networking and Actions for the future

Moderated by Dr Patrick Bastiaensen, Regional Programme Officer, WOAH Sub-Regional Representation for Eastern Africa

Overview of the Discussion Focus: The third group discussion, facilitated by Dr Patrick Bastiaensen examined strategies to strengthen laboratory networking and improve the sustainability of laboratory systems across Africa. Participants, organised into five groups, reflected on international and regional reference laboratory services, and analysed the persistent challenges affecting the functionality of regional laboratory networks.

The discussion session highlighted that strengthening laboratory networking in Africa requires coordinated efforts focused on governance, sustainable financing, harmonised standards, and alignment with regional disease priorities. These measures are essential to enhance diagnostic capacity, improve surveillance, and support effective, coordinated responses to animal health threats within the One Health framework.

Need for Additional Reference Laboratories in Africa: Participants unanimously emphasised the need to establish additional international reference laboratories in Africa, in line with recommendations from the WOAH Biological Standards Commission. Priority diseases identified included peste des petits ruminants (PPR), Nagana (animal trypanosomiasis), and rabies.

The discussion further highlighted the need for expanded regional reference laboratories, with proposed focus areas including PPR (West and Eastern Africa), rabies (West and North Africa), anthrax (Southern and North Africa), foot-and-mouth disease (North and Central Africa), avian influenza (Southern Africa), African swine fever (West and North Africa), Rift Valley fever and pox viruses (Central Africa), and broader needs related to *Theileria* species and epizootic ulcerative syndrome.

Eligibility Criteria and Institutional Requirements: Participants acknowledged that candidate laboratories must meet clearly defined eligibility criteria. ISO 17025 accreditation was widely considered a minimum requirement, alongside adequate funding, logistical accessibility, ability to operate in major regional languages, demonstrated technical expertise, and political and security stability. While prior participation in twinning programmes was not considered essential, strong linkages with international reference laboratories were recommended. Endorsement responsibilities were primarily attributed to WOAH and the Food and Agriculture Organization of the United Nations, with limited emphasis on regional political bodies and host-country endorsement.

Challenges Affecting Regional Laboratory Networks: Participants identified several constraints limiting the performance of regional laboratory networks. Although insufficient funding was a key issue, other critical challenges included weak coordination at national and regional levels, misalignment with priority diseases, policy differences among countries, and limited commitment from laboratory leadership and governments. Furthermore, they noted that many networks are established through short-term projects and become inactive once external funding ends, due to the absence of sustainable financing mechanisms.

Priority Areas for Strengthening Laboratory Networks: Participants recommended that regional laboratory networks prioritise transboundary animal diseases, with some groups also emphasising endemic diseases. Additional priority areas included strengthening quality management systems and standard operating procedures, harmonising laboratory data and information sharing, standardising diagnostic methods, enhancing capacity building, and ensuring long-term sustainability of laboratory systems.

Recommendations

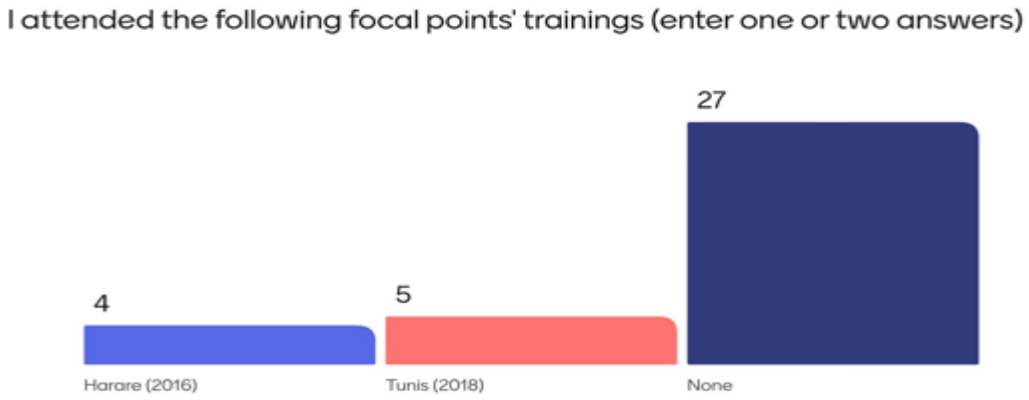
To improve governance, participants proposed stronger coordination through Regional Economic Community Secretariats, inclusive representation of all member states, formal agreements endorsed at high political levels, and the adoption of clear operational frameworks and terms of reference. Sustainable financing was highlighted as essential, with suggestions including alternative funding models such as membership-based systems to ensure continuity beyond project cycles.

In addition, Participants agreed on the importance of integrating regional laboratory networks with other collaborative platforms to enhance coordination and efficiency. Reference was made to multisectoral laboratory networks coordinated by the Africa Centres for Disease Control and Prevention, which link laboratories across human, animal, plant, and environmental health sectors. Strengthening linkages with existing international laboratory networks was also recommended by participants.

The discussion also explored the potential establishment of a continental animal health laboratory network to improve coordination across Africa. While broadly supported, participants emphasised that such an initiative should be pursued only after regional and sub-regional networks are fully operational and functional.

Workshop Reflections

The agenda proved ambitious for two and a half days, including a half-day visit to the two national laboratory facilities, which led to some time-management challenges. Nonetheless, the proceedings were successful, the organisation was flawless, and there was considerable commitment from the Government of Botswana, the WOAH Delegate and the two national laboratories. Most focal points attended this training for the first time, as shown by the Mentimeter™ poll:



MentiMeter™ outcome. The total is superior to the number of attending countries (27) because Botswana was represented by several representatives.

Focal points from 27 of the 28 invited English-speaking Members took part and engaged actively throughout the seminar, with the Botswana delegation also including the designated expert of the national WOAH Reference Laboratory.

The workshop successfully achieved its objectives by strengthening technical competencies, enhancing laboratory networks, and promoting alignment with international standards. It also provided a valuable platform for collaboration, enabling participants to share experiences, discuss shared challenges, and explore opportunities for regional cooperation. To sustain engagement beyond the workshop, participants proposed establishing a WhatsApp group to facilitate continuous communication and knowledge sharing.

A key issue highlighted was the need for harmonisation of laboratory systems. Participants emphasised standardising protocols across laboratories, including diagnostic procedures, biosafety practices, sample handling and storage, and staff training. Such harmonisation is critical to ensure consistent and reliable results, improve disease surveillance, and support informed decision-making, particularly for transboundary animal diseases and antimicrobial resistance (AMR).

Participants also identified supply shortages, especially limited access to reagents within the region, as a major constraint affecting laboratory operations. In addition, discussions underscored the importance of establishing additional WOAH Reference Laboratories in Africa, strategically located in epidemiologically relevant areas to strengthen regional diagnostic capacity and support disease control efforts.

Workshop Summary, Evaluation and Closing Ceremony

The seminar concluded with a summary of the workshop and an evaluation by participants, followed by the closing ceremony and the presentation of certificates.

Participants' Comments

On the final day, participants were asked to reflect on the three days of the seminar. A selection of their comments is presented below.

"The training provided a comprehensive overview of current and emerging threats to veterinary laboratories, combining technical, operational and strategic perspectives."

"The inclusion of country case studies made the sessions practical and relatable, demonstrating real-life applications of emergency management and laboratory resilience."

"The emphasis on multisectoral coordination and One Health principles was timely and aligned with the complex realities of disease outbreaks in fragile settings."

"Interactive group discussions, such as the scenario-based risk management sessions, encouraged cross-country learning and active engagement."

"The organisation of the event was commendable, with well-structured sessions that allowed meaningful engagement and discussion among participants."

Areas for Improvement

Participants also offered constructive feedback to inform future seminars. The most common concern was time. The agenda left limited room for in-depth discussion and questions after key technical presentations, particularly those on cyberbiosecurity and risk management. Participants suggested allocating more time to discussion and to the group sessions. Some felt that sessions would have benefited from more context and case studies from low-resource and conflict-affected settings. Participants also proposed that future cycles bring together focal points across language groups, for example through joint sessions with translation support, and that training be organised regularly, potentially on a three- to five-year cycle.

Further Information

The external documents listed below can be found on the WOAH Africa website and on Flickr:

Presentations

Photos from the workshop (Flickr)