VETLAB Network

A Joint FAO–IAEA initiative strengthening veterinary diagnostic capacity across Africa and Asia

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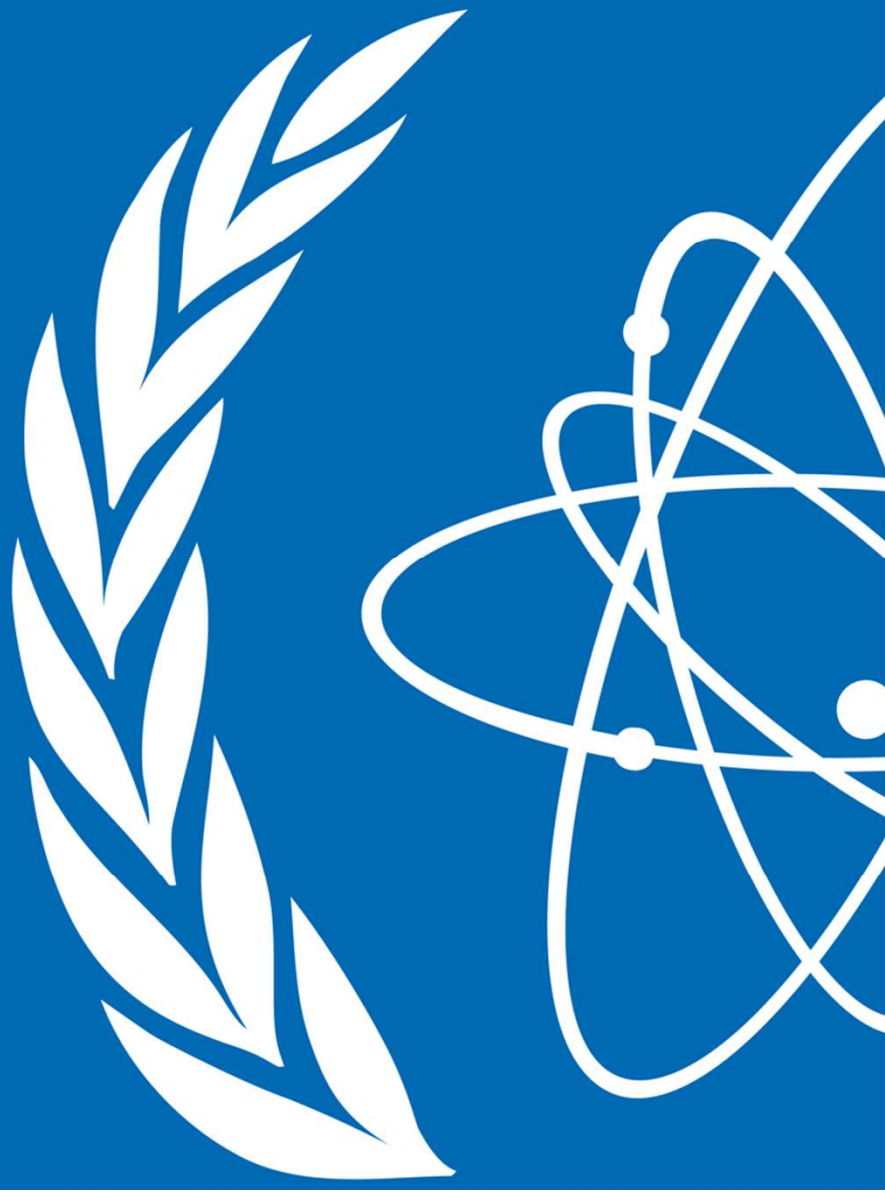
Joint FAO–IAEA Centre of Nuclear Techniques in Food and Agriculture

13th Meeting of the Regional Steering Committee for Africa (RSC13)
Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs) Abuja, Nigeria (hybrid) · 10–12 November 2026



Origins and evolution of VETLAB

Modelled on the Rinderpest eradication network of 1998 and formally established in 2012 under the Joint FAO/IAEA Centre

Founding mandate · improve global veterinary diagnostics, accelerate outbreak response and foster international scientific collaboration through nuclear and related techniques

71

LABORATORIES

Across 65 countries on two continents

46 African **19 Asian**

PARTICIPATION IN VETLAB ACTIVITIES — **71 in total**

33 full members

In 30 countries — taking part in all VETLAB activities

38 on request

Receiving emergency and request-based support

Funding constraints, not demand, set the limit on how many laboratories can be fully supported.

CORE MISSION

Rapid diagnosis of transboundary animal and zoonotic diseases, underpinned by nuclear techniques and international scientific collaboration — building resilient laboratory systems that detect, respond to and control disease at national and regional level.

A decade of expansion

From 10 African laboratories to a network of **33 fully supported laboratories across 30 countries**

February 2014

First coordination meeting for Africa — 10 laboratories from 9 sub-Saharan countries



March 2015

First meeting for Asia — 5 countries

August 2016

First joint Africa–Asia meeting — 19 laboratories, 18 countries; VETLAB CRP D32032 launched



August 2018

FAO HQ, WOAH and ERFAN join

August 2023

33 laboratories from 30 countries fully supported across all VETLAB activities



August 2024

Eighth joint coordination meeting for Africa and Asia — deeper partnerships



VETLAB's growth reflects sustained institutional commitment and an expanding circle of partners.

The network today: mission and components

What VETLAB does, and the five structures through which it does it

WHAT THE NETWORK DOES

VETLAB strengthens collaboration among veterinary diagnostic laboratories across Africa and Asia through structured capacity building, targeted training and collaborative research.

It enables Member States to share knowledge and experience, building national and regional capability for early and rapid diagnosis, and improving emergency response to outbreaks — including transboundary and zoonotic threats.

FIVE STRATEGIC FOUNDATIONS

01	**The network itself**	Laboratories engaged in Joint FAO–IAEA Centre projects.
02	**Annual meetings**	Technical and advocacy meetings of laboratory heads.
03	**Coordinated Research Projects**	VETLAB CRPs linking partners around shared questions.
04	**VETLAB Bulletin**	Published twice yearly since 2015.
05	**iVetNet**	The VETLAB information and data platform.

The common thread: diagnostic capability that stays in the country, supported by a network that keeps it current.

Building capacity and preparedness

Training and technology transfer across Africa and Asia since 2014 — diagnostic skills, and the tools to sustain them

TRAINING DELIVERED SINCE 2014

700+
scientists trained

21
Group trainings
461 scientists trained

7
PhDs enabled
4 have been laboratory heads

GROUP TRAINING AND TECHNOLOGY TRANSFER


Hands-on laboratory training


Classroom and data analysis


Institut Pasteur


IAEA Laboratories, Seibersdorf

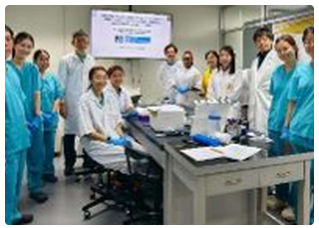
In-country training and missions

Field missions deliver training inside partner laboratories across Asia and Africa

RECENT MISSIONS



Indonesia



Thailand



Mongolia



Côte d'Ivoire



Mozambique

31
field missions

283
scientists trained in-country

Training delivered where it is needed — on the equipment partners use every day.

WHAT IS TRANSFERRED

01 Skills
Advanced molecular diagnostics, sequencing and bioinformatics taught hands-on.

02 Equipment and reagents
Partner labs supplied with the tools needed to sustain the methods.

03 Protocols
Validated SOPs installed locally so assays run without external support.

Preparedness and outbreak response

Priority diseases are raised at every annual meeting; when a new threat appears the network mobilizes immediately

PROACTIVE PREPAREDNESS

Awareness-raising on PPR, LSD, ASF and HPAI features in all annual meetings. When new threats emerge, VETLAB responds within days.

- Scientific guidance from APHL specialists, and experts from Network partners
- Shared standard operating procedures
- Emergency toolboxes — reagents and positive controls
- Support for sample submission and genetic characterization

VERIFIED OUTBREAK RESPONSES

Mongolia

PPR 2016 | ASF 2019 | LSD 2021 | CCPP 2024

All diagnosed and reported to WOAH with VETLAB support

Botswana and Lesotho

HPAI 2022

Confirmed and reported

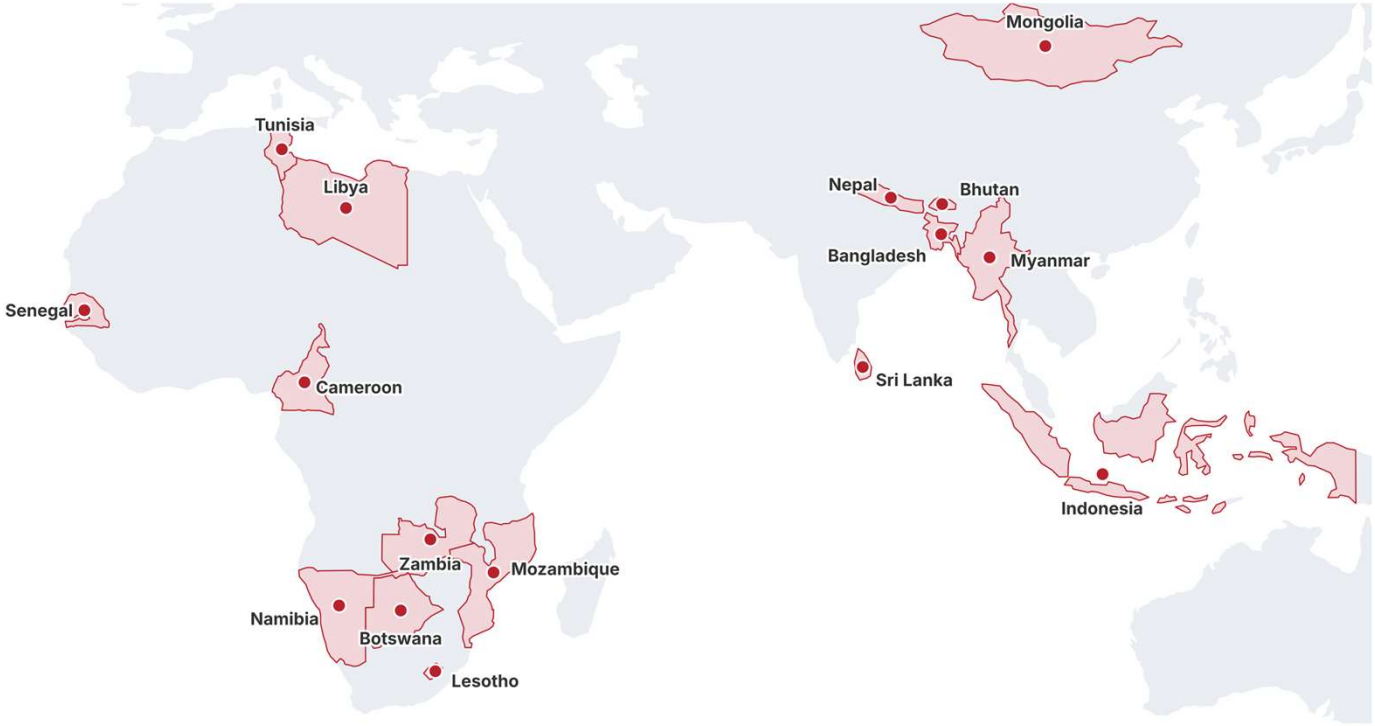
Senegal and Nigeria

Rabbit haemorrhagic disease 2021

Detected and reported

First-ever official disease reports

Countries shaded in red reported a disease to WOAH for the first time - nine countries in Africa, seven in Asia



16

countries

reporting a disease for the first time

AFRICA

9 countries

ASIA

7 countries

Enhancing laboratory quality systems

Supporting partner laboratories to meet international standards, and ultimately to reach ISO 17025 accreditation

STEP 1

Quality audits and method validation

Audits and method-validation training delivered with Sciensano and ACDP in 2019, building internal audit capacity.

STEP 2

Proficiency testing

Inter-laboratory PPR proficiency tests implemented; partners supported to join international reference schemes.

STEP 3

ISO 17025 accreditation

AHI and NVI accredited with VETLAB support; partners now organise proficiency tests locally.

RUNNING THROUGHOUT

iVetNet supports ISO 17025 implementation and CRPs was launched to facilitate access to secondary reference materials, more support is provided through TC projects and partnerships (FAO HQ, ERFAN)

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Accredited assays at the Botswana National Veterinary Laboratory. ISO 17025 is the condition for results being accepted internationally.

Advancing pathogen detection techniques

Since 2014, partner laboratories have moved from single-pathogen assays to syndromic panels and next-generation sequencing



Single-pathogen PCR

from 2014

Conventional and real-time PCR for pathogen typing transferred to all partner laboratories. Now fully mastered.

Syndromic testing

from 2014

Multi-pathogen panels widely adopted, revealing overlooked pathogens — pseudocowpox in cattle across Zambia, Botswana, Tanzania and Nigeria, and in camels in Ethiopia.

NGS and nanopore

from 2020

Intensive sequencing support launched in 2020; first course online in 2021, annually in Austria since. Bioinformatics is integral to every course.

Sequencing is offered free of charge to VETLAB partners through the Joint FAO/IAEA Centre — removing a decisive financial barrier for developing-country laboratories.

Addressing emerging diagnostic challenges

As threats evolve, technical support has shifted towards harder problems — vaccine differentiation and broad-host-range surveillance

01

Validation harmonization

Begun in 2020: versatile, multi-purpose assays transferred with harmonized validation frameworks, so results are comparable across borders.

02

DIVA strategies

Differentiating live attenuated vaccine strains from field virus — critical for accurate surveillance and for trade compliance.

03

Viral family-based assays

Broad-spectrum assays that detect emerging variants and novel members within a viral family, giving preparedness against unknown threats.

04

Species-independent serology

Serological methods for broad-host-range pathogens, covering several livestock species at once and widening surveillance coverage.

The common direction: fewer assays that each do more, validated the same way everywhere, so a result from one partner laboratory means the same as a result from another.

Fostering regional collaboration

Partner laboratories now train and support each other, with the Joint FAO/IAEA Centre as convenor rather than sole provider

HUB LABORATORIES HOSTING REGIONAL TRAINING

Botswana · Ethiopia · Cameroon · Senegal · Thailand · Tunisia · Morocco · Tanzania · Namibia

These nine laboratories trained scientists from neighbouring countries on transboundary and emerging threats between 2015 and 2023, creating a self-reinforcing circle of regional expertise.

LAB-TO-LAB SUPPORT IN ACTION

Senegal → Nigeria	RHD detection and WOAH reporting	2020
Senegal → Mauritania	HPAI support	2021
Namibia → Angola	ASF detection and genetic characterization	2023

NATIONAL AND REGIONAL DISCUSSIONS CONVENED

Equine disease emergence	2018
Rabbit haemorrhagic disease in West Africa	2020
FMD and LSD in Indonesia	–
LSD spread in North Africa	2023

Regional expertise now circulates between partners — the clearest sign that the network has outgrown a hub-and-spoke model.

Regional collaboration within the VETLAB Network, 2015–2023

From support to partnership

Partner laboratories now co-develop and validate diagnostic tools, and contribute to international research programmes

1 CO-DEVELOPMENT AND DIAGNOSTIC SERVICE

10+
Assays developed
Co-developed with partners through material sharing and joint testing

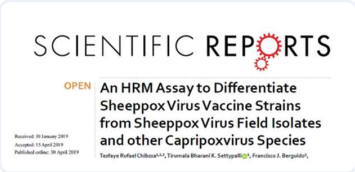
5
Assays by partners
Developed independently by partner scientists with APHL technical assistance

400–600
Samples a year
Received for diagnostic confirmation and molecular characterisation

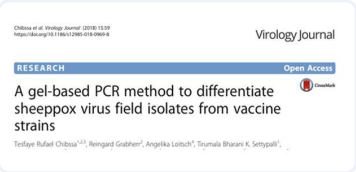
70
Scientific publications
Peer-reviewed output from joint research across the network

2 SELECTED PUBLICATIONS











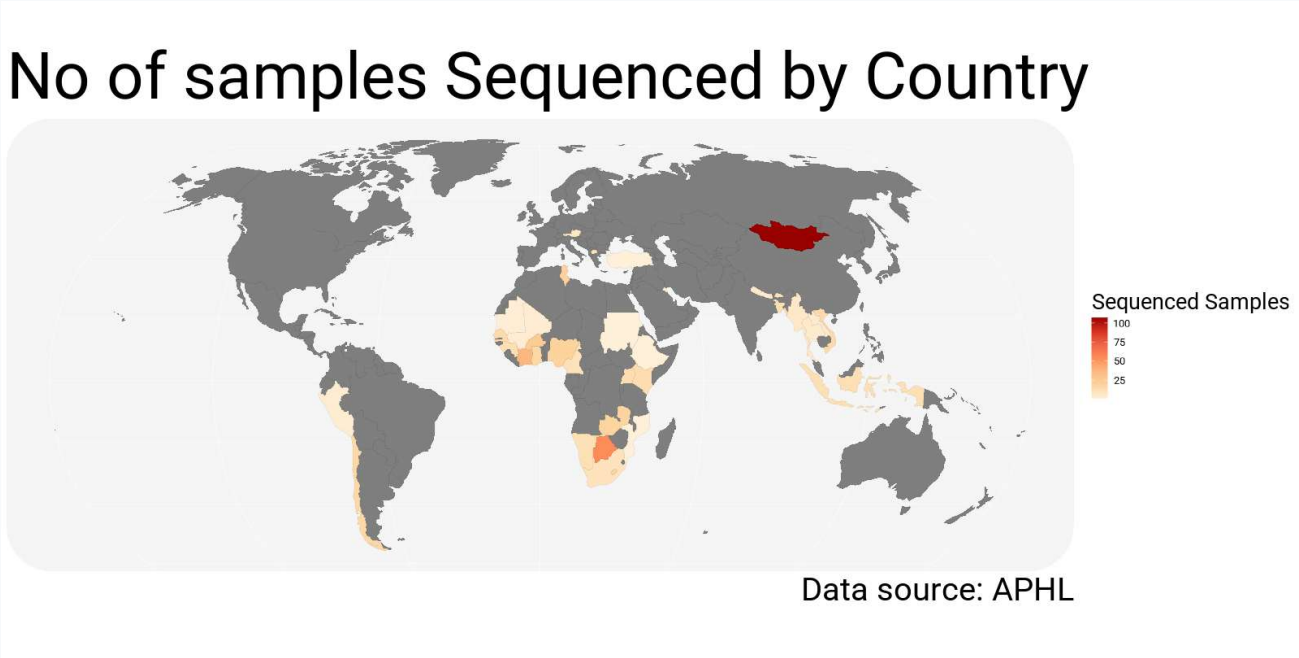
3 ZODIAC COORDINATED RESEARCH PROJECT — PARTNER COUNTRIES

Asia
Thailand · Indonesia · Vietnam · Mongolia

Africa
Burkina Faso · Ethiopia · Ghana · Côte d'Ivoire · Senegal · Tunisia · Zambia

Countries supported for sequencing

Samples submitted by VETLAB partners and sequenced at the Animal Production and Health Laboratory



Free-of-charge sequencing removes the single largest barrier to genomic surveillance for developing-country laboratories.

Number of samples sequenced by country · data source APHL

Key takeaways

A decade of VETLAB, in three conclusions

1

A proven model for capacity building

Over a decade VETLAB has trained more than 700 scientists, conducted 31 field missions and built sustainable diagnostic capacity in 30 countries across Africa and Asia.

2

Rapid response protects lives and livelihoods

Partner laboratories have made first-ever official disease reports to WOAH — PPR, ASF, LSD, HPAI and RHD — the most direct measure of what the investment returns.

3

Quality and research are inseparable

ISO 17025 accreditation, inter-laboratory proficiency testing and co-developed assays have turned recipients of support into scientific partners in global animal health security.

VETLAB continues to widen its ambition — integrating next-generation and nanopore sequencing and One Health approaches to stay ahead of emerging threats.

Thank you

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