



## STRENGTHENING REGIONAL VETERINARY LABORATORY NETWORKS IN AFRICA AND ASIA



**TRANSBOUNDARY ANIMAL DISEASES** (TADs) including some high impact zoonoses are highly contagious diseases that can spread rapidly, irrespective of national borders and can negatively impact public health, livelihoods and safe trade.

Controlling infectious diseases of animals, and minimizing their impact on countries' economies and livelihoods of people is crucial for food security.

Veterinary laboratories play a critical role in the early detection and characterization of known, new, or re-emerging epidemic diseases, as well as in the control of endemic diseases. They also contribute to addressing complex issues at the human-animal-environment interface.

A strategic imperative for efficiently managing TADs and zoonotic diseases is building national technical capacities of laboratories in competency and a critical mass of laboratory specialists belonging to global, regional, and national networks.

### REGIONAL VETERINARY LABORATORY NETWORKS *key facts*

PROVIDING SUPPORT TO  
PREVENT AND CONTROL  
TRANSBOUNDARY ANIMAL  
DISEASES, AND FACILITATE  
REGULAR, TRANSPARENT,  
AND RAPID EXCHANGE OF  
INFORMATION

SERVING AS PLATFORMS  
ALLOWING THE  
DEVELOPMENT OF  
REGIONAL PROGRAMS ON  
COMMON ISSUES, SUCH AS  
THE REGIONAL QUALITY  
ASSURANCE PROGRAM

### REGIONAL VETERINARY LABORATORY NETWORKS TO COMBAT TRANSBOUNDARY ANIMAL DISEASES

FAO's experience in networking has shown that regional networks are an effective framework for combating TADs. The FAO EMPRES-Emergency Centre for Transboundary Animal Diseases, enhanced by the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, has been working for many years with national laboratory focal points and international partners to provide coordination, capacity development, and support to regional laboratory networks in Africa, Middle East and Asia.

FAO supported the establishment and development of several regional laboratory networks. In 23 West and Central African countries, two major active networks, the Regional Laboratory Network (RESOLAB) and the Regional Epidemiology Network (RESEPI), initiated and assisted by FAO, cover diagnostic and epidemiological surveillance activities for Avian Influenza and

other TADs. Two similar regional networks, the Eastern Africa Region Epidemiology Network (EAREN) and the Eastern Africa Region Laboratory Network (EARLN), provide support to these activities in 11 countries in East Africa. In West Eurasia, two networks, the West Eurasia Laboratory Network (WELNET) and the Epidemiology Network (EPINET), have been established in support of Foot-and-mouth disease progressive control pathway. In the Mediterranean region, six countries are covered by the Mediterranean Network for Animal Health (REMESA). In Asia, the Association of Southeast Asian Nations (ASEAN) and the South Asian Association for Regional Cooperation (SAARC) networks allow laboratory networking to ten South East Asian countries and eight South Asian countries, respectively.

Resource laboratories, known as "support" or "leading diagnostic" laboratories have been selected in sub-Saharan Africa and Southeast Asia, to provide services in disease confirmation, production of standardized reagents, validation of protocols, and capacity building.

**STRENGTHENING REGIONAL VETERINARY LABORATORY NETWORKS IN AFRICA AND ASIA**

**› REGIONAL VETERINARY LABORATORY NETWORK** *key facts*

**ENABLING THE APPLICATION OF STANDARDIZED PROTOCOLS AND TOOLS, SHARING OF EXPERTISE, EXPERIENCES AND TRAINING OPPORTUNITIES**

**ENABLING THE USE OF STANDARDIZED DIAGNOSTIC REAGENTS, THE ORGANIZATION OF REGIONAL PROFICIENCY TESTS, AND BUILDING TRUST ACROSS BORDERS AND PROFESSIONALS**

**REGIONAL SPECIALIZED NETWORKS FOR DIAGNOSTIC AND EPIDEMIOLOGICAL SURVEILLANCE: WEST AND CENTRAL AFRICA - RESOLAB AND RESEPI; EASTERN AFRICA - EARLN AND EAREN; SOUTH EAST ASIA - ASEAN; SOUTH ASIA - SAARC; MEDITERRANEAN REGION - REMESA; WEST EURASIA - WELNET AND EPINET**

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FAO provides support to ensure and guide their regional responsibilities. Regional networks enable the coordination of a multiplicity of actions including the application of standardized protocols and tools, sharing of expertise, experiences and training opportunities, the use of standardized diagnostic reagents, breaking the isolation of national teams in developing countries, organization of regional proficiency tests and more transparent disease reporting, as well as building trust across borders and professionals. They are also useful platforms allowing the development of regional programs on common issues, such as the Regional Quality Assurance Program developed by FAO, or the Regional Biosafety Program for national veterinary laboratories in South and Southeast Asia.

FAO assists also in linking countries and regional laboratory networks with global networks such as the joint World Organization for Animal Health (OIE)-FAO OFFLU network for influenza and those of international partners such as the World Health Organization (WHO) and OIE, Reference Centres for independent technical and scientific advice.

**SOME FAO GLOBAL INITIATIVES AND TOOLS IN SUPPORT TO VETERINARY LABORATORIES**

Adequate veterinary laboratory policy and legislation are key to maintain accessible, efficient and cost effective veterinary laboratory services. In 2013, FAO initiated the development of an approach to strengthen veterinary laboratory policy. This novel approach is currently piloted in Kenya.

Understanding national and regional needs and resources by using standardized tools to assess and monitor laboratories' capacities and functionality is essential to identify diagnostic laboratory's gaps. FAO developed the Laboratory Mapping



Tool in order to standardize data collection on the competencies and gap identification in laboratory functionality, including the required personnel profiles. This tool has been applied in various countries and the outputs can be used to generate a "map" of a laboratory's strengths and weaknesses to better understand national and regional expertise, and to target areas for support. The FAO Laboratory Mapping Tool will be soon expanded through specific modules, including that of antimicrobial resistance, and will be available on smartphones and tablets.

FAO provides guiding tools and supports the implementation of Laboratory Information Management System (LIMS) in national laboratories for standardization of laboratory diagnostic processes and better sample tracking. Inter-operability between the LIMS and the national Livestock Identification and Traceability System is also established in some countries. FAO supported Indonesia in building a national database for real-time information sharing of laboratory results within the country.

FAO developed the influenza genetic module which is a component of EMPRES-*i* database (the FAO Global Animal Disease Information System). The influenza genetic module is a tool to integrate pathogen-related data into EMPRES-*i*.

FAO will continue supporting member countries in preventing, detecting, and responding to threats of animal origin by strengthening capacities of national and regional epidemiology and laboratory systems through continuous staff training, provision of tools and standardized methodology.