

**The European Union's External Actions**

# **Establishment of Mobile Laboratories for Pathogens up to Risk Group 4 in sub-Saharan Africa**



This project is funded by  
The European Union

A project implemented by  
the European Mobile Laboratory  
Consortium.

# European Mobile Lab Project

Epidemic-prone diseases still pose serious public health threats in many countries and the risk of spread of infectious diseases due to global travel and trade increases. Outbreaks with risk group 3 and 4 pathogens often occur in sub-Saharan Africa. This region is endemic for hemorrhagic fever viruses like Ebola, Marburg, Lassa, Crimean Congo Hemorrhagic Fever, Yellow Fever, and Rift Valley Fever, but also other important viral and bacterial pathogens.

Despite the considerable progress that African countries have made in outbreak detection and response, there remain significant challenges. Many African countries do not have early response capacities needed to facilitate the rapid containment of epidemic-prone diseases, necessitating international support by *World Health Organization* (WHO), *Médecins Sans Frontières* (MSF), and others.

## The EMLab Consortium

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Thus, there is a need to implement a strategy to strengthen national and regional capacities and systems to identify, verify, notify, and respond rapidly and effectively to epidemic-prone diseases and other public health emergencies of national and international concern. The diagnostic dilemma with viral hemorrhagic fevers is that they clinically mimic a wide range of other infectious diseases. This is a rationale for implementation of mobile laboratory capacities in the field.

The EuropeAid Cooperation Office (DevCo) of the European Commission has set up the collaborative project „*Establishment of Mobile Laboratories up to Risk Group 4 in combination with CBRN Capacity Building in sub-Saharan Africa*“ (EMLab project, 2012-2015) with a budget of 3.5 Mio EUR. The EMLab consortium includes several EU Biosafety level 4

laboratories and technical partners.

The overall objective of the EMLab project is to establish mobile laboratory units as well as a collaborative network involving European and African institutions able to operate these units in the field. The deployable diagnostic laboratory units are based on know-how of the Bundeswehr Institute of Microbiology, Munich, Germany. The EMLab concept also takes into account the experience of Canadian and US-American mobile laboratories, which have been deployed several times in field missions and provided assistance in emergencies in the past.

In the course of the project, it is planned to set up three deployable laboratories for molecular and serological diagnosis of infectious diseases and maintain them in an operational state of readiness. The EMLab units shall be based in West Africa (Nigeria), East Africa (Tanzania), and Europe (Munich, Germany). All EMLab equipment will be lightweight and transportable by using public transport systems, robust, and composed of independent modules usable in the field. The initial focus will be the molecular diagnosis

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of viral pathogens of risk groups 3 and 4, but it can be extended to other viruses and also bacteria like e.g. *Bacillus anthracis*, *Vibrio cholera*, or *Yersinia pestis* if needed in an epidemic situation. Biosafety under field conditions will be addressed by the use of transportable biosafety cabinets for the safe handling and inactivation of infectious samples.

Following the procurement of the equipment and the establishment of the first laboratory unit in Europe, a pool of European and African scientists will be trained in on the unit. Training missions and mock deployments are planned. The EMLab unit based in Nigeria will be specifically linked with and supported by the Bernhard-Nocht Institute for Tropical

## Aims of the EMLab Project

- *Improve capacity to respond to outbreaks of risk group 3 and 4 pathogens in Europe and Africa.*
- *Strengthen scientific cooperation between Europe and Africa in the field of epidemic-prone infectious diseases.*
- *Help African public health and research institutions to manage outbreak situations and conduct research on epidemic-prone pathogens.*
- *Enhance scientific knowledge on highly pathogenic agents.*

Medicine. The unit in Tanzania will be supported by the Istituto Nazionale per le Malattie Infettive "L. Spallanzani" (INMI) in Rome, Italy. To strengthen the African response capacities in case of outbreaks in the region, local laboratory scientists and public health professionals will be trained in the safe operation of the mobile laboratories and diagnostic methods in Africa. Workshops including mock deployments are planned. All three EMLab laboratories may be deployed within the framework of the WHO *Global Outbreak Alert and Response Network* (GOARN) or on the basis of bilateral agreements.

The project is linked with WHO, *European Centre for Disease Prevention and Control* (ECDC), and EU public health networks such as *European Network for Diagnostics of Imported Viral Diseases* (ENIVD) and *Quality Assurance Exercises and Networking on the Detection of Highly Infectious Pathogens* (QUANDHIP).

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