



Sotilaslääketieteen keskus

BWC Meeting of Experts

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Strengthening Health and Biosecurity in Tanzania by Biodetection Capacity Building

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Puolustusvoimat

Försvarsmakten • The Finnish Defence Forces

Strengthening Health and Biosecurity in Tanzania by Biodetection Capacity Building

Introduction 1/2

- **Finland has initiated a 5-year collaboration with Tanzania on strengthening laboratory capacity in and raising awareness in biosecurity and biosafety in Tanzania.**
- Our project was launched in October 2014 and it is funded by the Ministry for Foreign Affairs, Finland.
- Tanzania is Finland's longest-standing development partner and one of the largest recipients of Finnish development aid.



Strengthening Health and Biosecurity in Tanzania by Biodetection Capacity Building

Introduction 2/2

- Bilateral collaboration between the:
 - Centres for Biothreat Preparedness and for Military Medicine, Finnish Defence Forces, and
 - Tanzania Veterinary Laboratory Agency (TVLA), Ministry of Livestock and Fisheries Development, United Republic of Tanzania.



Strengthening Health and Biosecurity in Tanzania by Biodetection Capacity Building

II ACTION PACKAGES:

Prevent 1:	Antimicrobial Resistance
Prevent 2:	Zoonotic Disease
Prevent 3:	Biosafety and Biosecurity
Prevent 4:	Immunization
Detect 1:	National Laboratory System
Detect 2 & 3:	Real-Time Surveillance
Detect 4:	GHSA Reporting
Detect 5:	Workforce Development
Respond 1:	Emergency Operations Centers
Respond 2:	Linking Public Health with Law and Multisectoral Rapid Response
Respond 3:	Medical Countermeasures and Personnel Deployment



Strengthening Health and Biosecurity in Tanzania by Biodetection Capacity Building

The Main Objectives are to:

- Build local capacity on detection of biothreat pathogens and infectious diseases
- Develop a diagnostic system based on local needs, suitable for field use
- Train and collaborate with local experts and authorities in using detection methodology
- Raise local knowledge and awareness in biosecurity, biosafety, laboratory biorisk management and biothreat reduction.





Mobile Real-Time qPCR System – Deployed for field detection of pathogens

Field bag for
sample preparation



The qPCR instrument



Size: 30 x 30 x 30 cm
Weight: 10 kg



Results can be obtained in ~1,5 h
= Fast and easy to use



STRENGTHENING HEALTH AND BIOSECURITY IN TANZANIA THROUGH BIODETECTION



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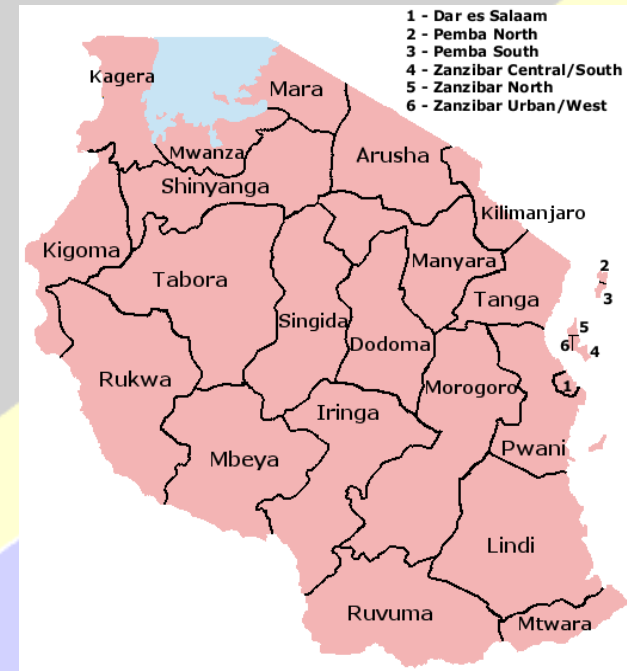
¹Tanzania Veterinary Laboratory Agency (TVLA), Dar Es Salaam, TANZANIA

²Centre for Biothreat Preparedness and Military Medicine (SOTLK), Helsinki, FINLAND

INTRODUCTION

Population

- human 44.9m living in a 945,200 sq. km
- **Domestic Livestock:**
 - 22.8 million cattle
 - 15.6 million goats
 - 7.0 million sheep
 - 2.01 million pigs



Protected Areas

- 28% of the total land area(94.8 million ha).
- 14% is Game Reserves,
- 8% is Game Controlled and 1% NCA
- # Parks: 16 = 42,000 km²



INTROD....



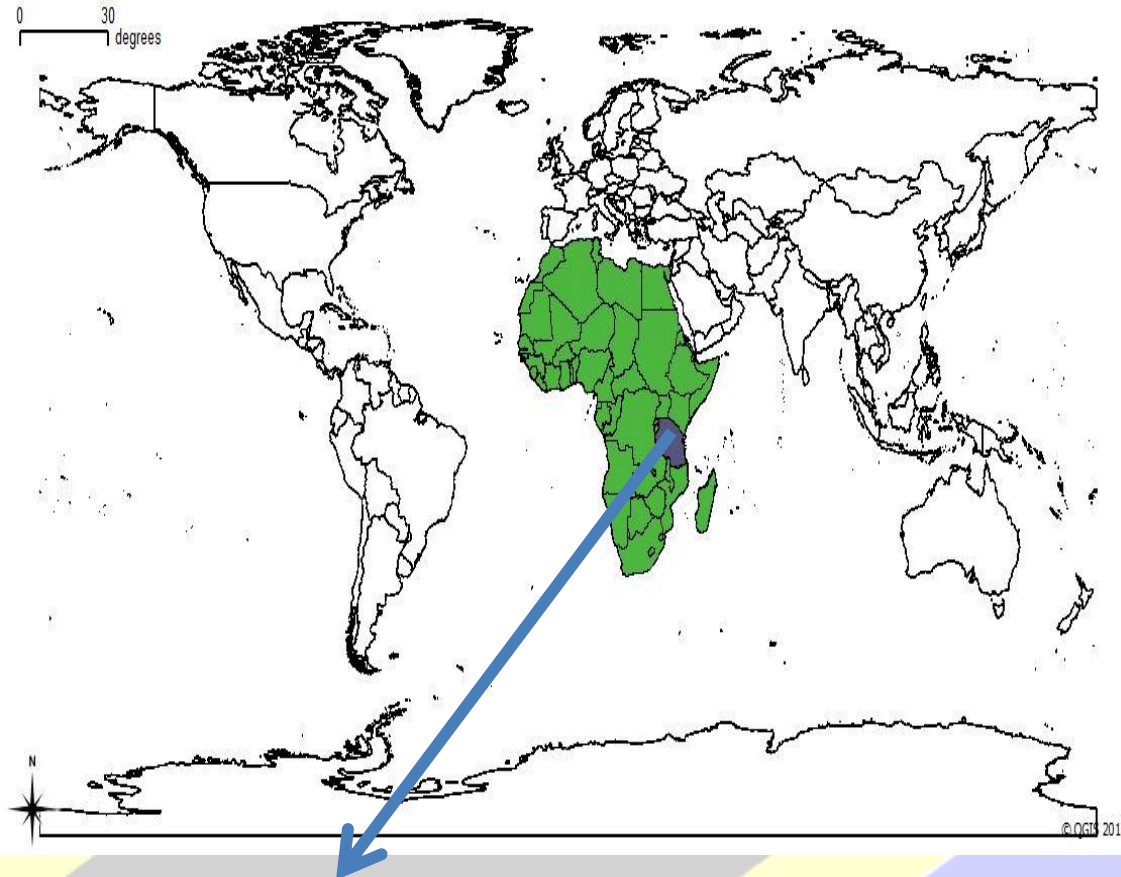
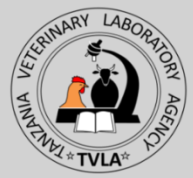
Biodiversity in East Africa, including TZ is uniquely rich

Several pathogenic microbes exist in the wild that threaten human and animal health

About 75% of the emerging and remerging disease affecting humans are caused by pathogens of animal origin



INTROD.....



Tanzania shares borders with eight countries

Movement of wild animals from one country to another is inevitable

Both Zoonotic and Transboundary animal diseases is shared among the countries

Tanzania Veterinary Laboratory Agency

- Established under the Executive Agency of the Ministry of Livestock and Fisheries Development (MLFD)

purpose

- Maximizing the efficiency and effectiveness in the delivery of diagnostic services, disease surveillance, animal diseases research and vector control

Mandate

Animal disease surveillance and diagnostic



- ✓ animal disease research,
- ✓ vector control research,
- ✓ testing of veterinary pharmaceuticals
- ✓ production of vaccine and other biologicals



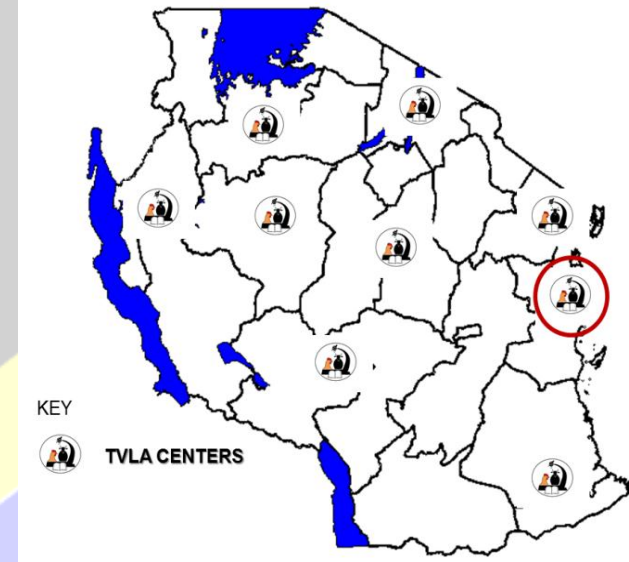
Available at www.tvla-tz.or



TVLA



- Diagnostic services provided are from simple to high molecular techniques in Vector, Parasites, Pathology, Bacteriology and Virology
- Agency has 11 centres that are
- strategically located to reach most of the livestock farmers across the country
- 9 of them do conduct diagnostic services
- The headquarters at Temeke – Dar es Salaam
 - **Central Veterinary Laboratories (CVL) at Temeke,**
 - **Centre for Infectious Diseases and Biotechnological (CIDB)**
 - **Tanzania Vaccine Institute – Kibaha (TVI)**



COMMON DISEASES FOUND IN TANZANIA

- **Chikungunya (90s)**
- **Ebola threat (neighbor)**
- **1983: HIV**
- **Rift Valley Fever 2007**
- **Anthrax**
- **Brucellosis**
- **Plague (Tanga and Manyara)**
- **Dengue (2014 re emergency)**
- **Influenza (low pathogenic)**
- **Human Trypanosomiasis**

Transboundary Animal Diseases (CBPP, FMD,CCPP,

Challenges

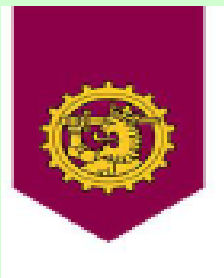
- **Inconsistency and inadequate regional harmonization in conducting passive and active surveillance**
- **Inadequate laboratory capacity**
- **Lack of lab information management system**
- **Inadequate research and understanding of the epidemiology of the zoonotic pathogen.**
- **Poor understanding of the impact of Climate Change and hosts in the transmission and spread of the disease**



What to do?



- Improve capacity by raising expertise in diagnosis for early warning and networking
- Build preparedness to react to novel disease threats by Improving capacity for rapid detection research and networking
- Biosafety and turn around time effectiveness
- Equipment– diagnostic capabilities, as well as knowledge acquisition



What to do?



- Government and Development partners to Provide adequate allocation of resources to its core services
- Improve multi-sectoral collaboration in surveillance in zoonosis
- Harmonization of regional cross border surveillance
- Strengthen Networking (Animal Health, Public Health and Ecosystem Health) - **One Health Concept**

Diseases in the Project



Disease in subject include:

- Plague,
- Anthrax,
- Brucellosis,
- Cholera,
- Rift Valley fever (RVF),
- Dengue,
- Viral hemorrhagic fevers (**Ebola** and Marburg),
- Avian influenza



TAKE HOME MESSAGE

- Emerging and re-emerging of infectious diseases
Endemic in AFRICA Countries are a threat to both
local and international health security
- Priorities in biosecurity and health security is
necessary (Inevitable)

TOGETHER WE CAN MAKE A DIFFERENCE

Thank You

