

# GF-TADs

GLOBAL FRAMEWORK FOR THE  
PROGRESSIVE CONTROL OF  
TRANSBOUNDARY ANIMAL DISEASES

*Africa*



Food and Agriculture  
Organization of the  
United Nations



World Organisation  
for Animal Health  
Founded as OIE





**NATIONAL VETERINARY RESEARCH INSTITUTE, Vom NIGERIA** [www.nvri.gov.ng](http://www.nvri.gov.ng)

*Protecting Animal and Public Health since 1924*

# CBPP Situation Update:

## NIGERIA

**Dr Maryam Muhammad** *DVM, PhD, FCVSN*

[maryam.muhammad@nvri.gov.ng](mailto:maryam.muhammad@nvri.gov.ng)

June 7th 2023



# SGE1 CBPP About NVRI

- **Vom: HQ of National Lab**
  - Central location
  - Network of **23 Outstation Labs**
- Accessibility
  - **Road; Air (Yakubu Gowon Airport); *Rail***
- Conducive Climate
- Multidisciplinary professionals in specialized laboratories



# SGE1 CBPP Key Activities



Surveillance and  
Diagnosis



Innovative R & D:  
Vaccines & Other products



Extension Services

**Training: Share knowledge and transfer skills**





# SGE1 CBPP CBPP Update



- CBPP still prevalent in Africa
- Present in Nigeria (North-East region especially with large cattle population)
  - Recently detected in Eastern parts of Nigeria (Anyika *et al.*, 2021)
- Prevalence is high (~ 40%); wide range (<1 - 50%)
  - Likely under reported;
  - High morbidity and mortality
- NVRI provides surveillance and diagnosis; produces the vaccine (T 1/44)
  - National Laboratory; 23 Outstation Labs and other labs (samples)
- **CBPP vaccine requirement**

Nigeria	17 m doses p.a. (Cattle)
Africa	300 m doses p.a. (Cattle)

(80% coverage)



# SGE1 CBPP

## Vaccination: Main control strategy

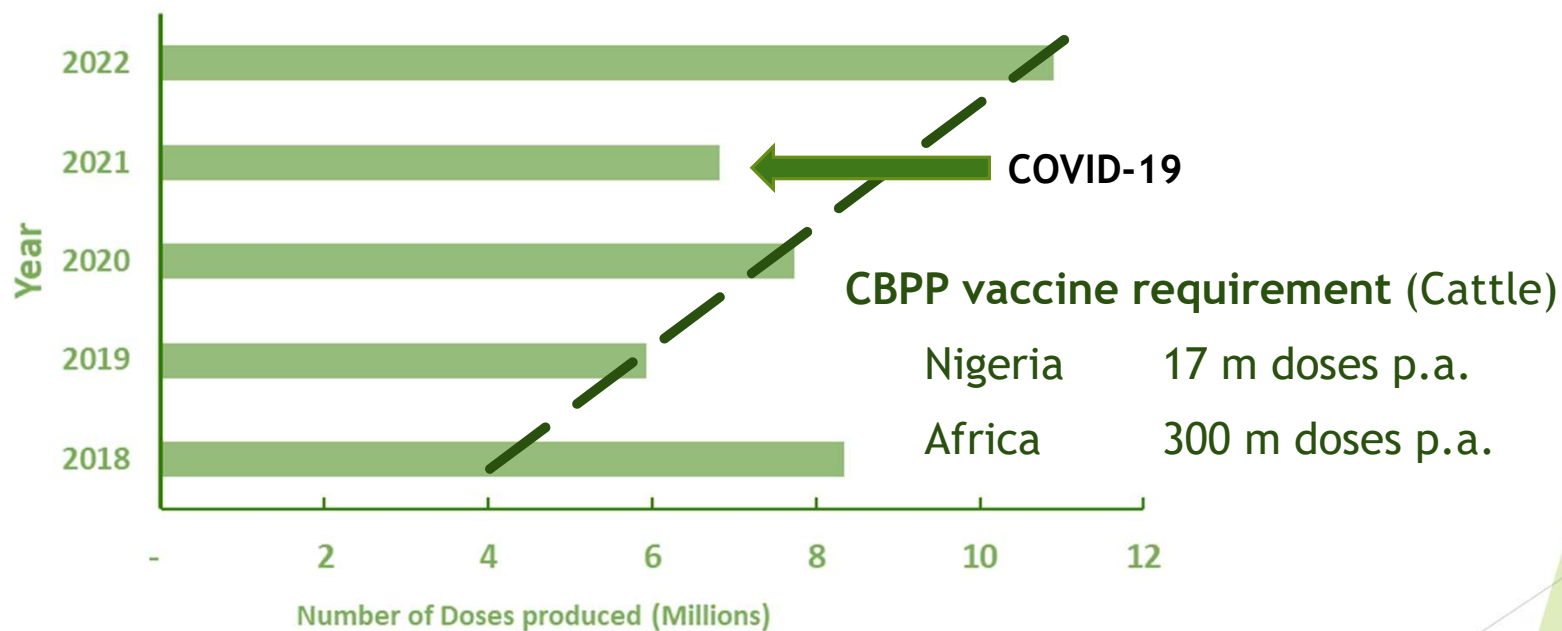
- **1960s** JP 28 Joint Project 28  
*Some Control achieved (temporary)*
- **1990s** Re-emergence (Chronic carriers - *Lungers?*)  
National Program (3 years)  
Vaccination coverage: **around 10% average**
- **2000s** Mostly individual farmers; support from Government
- **2020** National Contingency Plan for the Control of CBPP
- **2019 - Date** Improved vaccination; Government, Partner supported (ICRC, etc)



# SGE1 CBPP

## CBPP Vaccine production at NVRI

CBPP (T1/44) vaccine Production





**NATIONAL VETERINARY RESEARCH INSTITUTE, Vom NIGERIA** [www.nvri.gov.ng](http://www.nvri.gov.ng)

*Protecting Animal and Public Health since 1924*

# Developing Regional Service Laboratories for CBPP: Diagnostic capacities and challenges

**Dr Maryam Muhammad** *DVM, PhD, FCVSN*

[maryam.muhammad@nvri.gov.ng](mailto:maryam.muhammad@nvri.gov.ng)

June 8th 2023





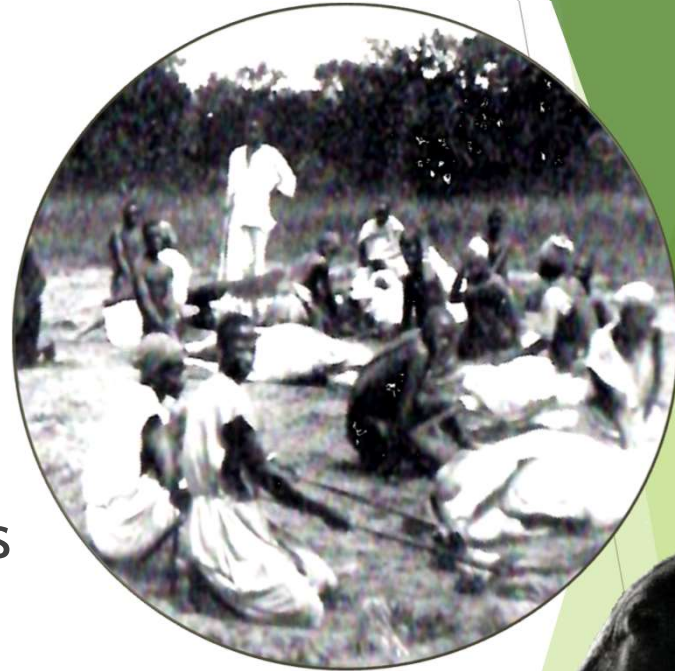
# SGE1 CBPP About NVRI

- **Vom: HQ of National Lab**
  - Central location
  - Network of **23 Outstation Labs**
- **Accessibility**
  - **Road; Air (Yakubu Gowon Airport); *Rail***
- **Conducive Climate**
- **Multidisciplinary professionals in specialized laboratories**



# SGE1 CBPP History

- ▶ **The Rinderpest pandemic**
  - ▶ NVRI 1924 (Vet Dept. Zaria, 1913)
- ▶ **Solution:** Local vaccine development
- ▶ **Developing indigenous solutions is possible!**
  - ▶ Innovative R&D; strong collaborations
  - ▶ Bridging the last mile!



# SGE1 CBPP Key Activities



Surveillance and  
Diagnosis



Innovative R & D:  
Vaccines & Other products



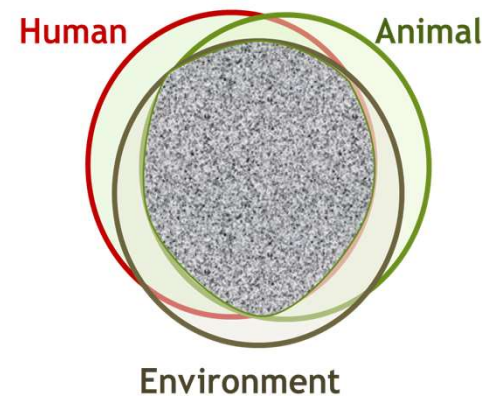
Extension Services

**Training: Share knowledge and transfer skills**



# SGE1 CBPP Surveillance (+TADs & Zoonoses)

- Incorporates a OH approach
- Prioritized diseases
- Zoonoses
- Transboundary Animal Diseases (TADs)
- **Examples**
  - Rabies, Monkeypox (& Lassa Fever), SARS Cov 2, Highly Pathogenic Avian Influenza (HPAI), Rift Valley Fever;
  - ASF, FMD, Rabbit Haemorrhagic Disease
  - CBPP, PPR, ND; AMR; Brucellosis, Leptospirosis





# SGE1 CBPP Laboratory Diagnostic Services

- **Central Diagnostic Laboratory**
  - several diagnostic labs
  - BSL-3 Facility
  - 23 Outstation Labs, etc.



Dr Maryam Muhammad NVRI Vom, NIGERIA



26 May, 2023





# SGE1 CBPP

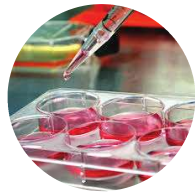
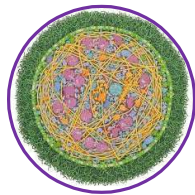
## Vaccine Production: Innovative R&D

- ▶ **NVRI's key Mandate**
  - ▶ Started with rinderpest antiserum (1925)
- ▶ **Both Bacterial and Viral Vaccines**
  - ▶ 20 vaccines in production
  - ▶ Anthrax, Rabies, PPR, FMD, CBPP, etc.
- ▶ **Different technologies**
  - ▶ Meat-based
  - ▶ Egg-based (chicken embryo)
  - ▶ Cell-based
  - ▶ *In development: Nucleic acid and viral vector vaccines (Collaboration on COVID-19 vaccine)*



# SGE1 CBPP

## CBPP Vaccine Production: End-to-end



**CBPP vaccine (D100): Tanzania 1/44 Live attenuated, freeze-dried**



# SGE1 CBPP

## Extension Services (Farm/Herd Biosecurity)

- Dissemination of knowledge
  - Disease updates
  - New product/process
  - Etc.
- Capacity/Skills Development
- Strategic training
- Feedback (Impact Assessment)





# SGE1 CBPP Capacity Development & Training

- Hands-on
- Specialized
- Resident
- Client-specific
- Basic - advanced



# SGE1 CBPP Achievements

- ▶ **Development of animal vaccines and biologicals**
  - ▶ Up to 120 million doses of vaccines produced annually
- ▶ **Sustained rapid disease diagnosis and surveillance services**
  - ▶ **23 Outstation Labs**
- ▶ **Provision of livestock extension services**
- ▶ **Strong network of collaboration (National & International)**
- ▶ **Capacity building in laboratory diagnosis, animal health and production technology**
- ▶ **Vocational training programs**





# SGE1 CBPP Special Recognition

- ▶ National Reference Laboratory for Rabies
  - ▶ NVRI's continuous improvement of diagnostic capacity using twinning programmes
- ▶ Regional Laboratory for HPAI
- ▶ AMR National Reference Laboratory (Animal Health)
- ▶ NVRI is an FAO collaborating Centre for Emergency Preparedness for transboundary animal diseases
- ▶ IAEA's ZODIAC National Laboratory (ZNL)



# SGE1 CBPP

## NVRI as a regional service laboratory for CBPP

- NVRI is willing to take on this role to strengthen Africa's regional capacity
- NVRI has the technical expertise across all aspects critical to CBPP control
  - Surveillance, Diagnoses, Vaccine production, Capacity building, etc.
- Personnel have experience working on different CBPP diagnostic platforms
  - Serology and molecular platforms
- Existing laboratory capability
  - Though limited by ageing equipment



# SGE1 CBPP Challenges & Opportunities

- ▶ Ageing Laboratory infrastructure and equipment
- ▶ Accessibility challenges with imported inputs
- ▶ Paucity of funding (Government)
- ▶ Security-related challenges limiting access
- ▶ Vaccination key to successful control prog.
  - ▶ Need to scale up production
- ▶ Vaccine distribution; *bridging the last mile*
  - ▶ Hard-to-reach; rural areas; Cold-chain maintenance
- ▶ Good epidemiologic information;
- ▶ Wild ruminants? source of infection at the domestic-wildlife ruminant interphase
- ▶ Etc.



# SGE1 CBPP

## Some ideas to address the challenges

- ▶ Active surveillance in ruminants, including in wildlife species.
- ▶ Upgrade infrastructure and replace ageing/obsolete equipment
- ▶ Introduce new vaccine production technologies (technology transfer; thermotolerant CBPP vaccine?); Specialized training for personnel
- ▶ Improve vaccine distribution network and vaccination programs
  - ▶ Requires substantial capital investment unavailable through government resource alone.
- ▶ Train more Veterinary Para-professionals (VPP) and community animal health workers (CAHWs)
- ▶ Provide trainings for regional/national laboratories



# SGE1 CBPP

## NVRI

# welcomes partnerships

Working together to  
achieve stronger regional  
and global health security is  
the goal.

Dr Maryam Muhammad NVRI Vom, NIGERIA

- ▶ Highly skilled personnel
  - ▶ biotechnology, vaccinology, pharmacology, nanotechnology, virologists, bacteriologists, parasitologists, etc.
- ▶ Technical platforms that can support vaccine technology transfer
  - ▶ Nucleic acid amplification; RNA/DNA technology; Cell culture
- ▶ To achieve this goal, **NVRI continues to engage with partners towards infrastructural and facility upgrade, procurement of supplemental equipment and critical inputs, as well as promote specialized training.**

26 May, 2023

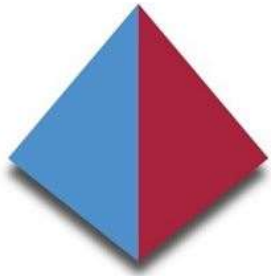
23





# SGE1 CBPP Acknowledgement (Partners)





# GF-TADs

GLOBAL FRAMEWORK FOR THE  
PROGRESSIVE CONTROL OF  
TRANSBOUNDARY ANIMAL DISEASES

*Africa*



Food and Agriculture  
Organization of the  
United Nations



World Organisation  
for Animal Health  
Founded as OIE



# SGE1 CBPP Title

- Text

Dr Maryam Muhammad NVRI Vom, NIGERIA

26 May, 2023

26

