



BVI contribution to PSDP on Beef Value Chain Development

**“a case for provision of
scientific/technical support
for sustainable BVC”**

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PROVIDING SUSTAINABLE ANIMAL HEALTH SOLUTIONS

OUTLINE

- Introduction
- BVI contributions/achievements to
 - Animal Health & Production
 - Improvement to the BVC
- Conclusion



Introduction to BVI



The Botswana Vaccine Institute Limited (BVI) is:

- an autonomous and totally self funding public company wholly owned by **GoB**
- was established in 1979 through the technical cooperation between MERIAL and the **GoB**.
- Objective: to research on FMD virus serotypes circulating in the region and to make appropriate vaccines to safeguard beef trade

MANDATE



- National:
 - To provide support to the livestock industry through research on FMD virus circulating in Botswana to provide appropriate vaccines for control of FMD & other economic diseases
- International:
 - OIE regional reference laboratory for FMD responsible for Technical support for laboratory confirmation & FMD control to MS in Sub Saharan Africa region since 1985



BVI contribution to FMD diagnosis in Africa



- 1985 : Recognition by the O.I.E., the World Animal Health Organisation, as

- **“Regional Reference Lab for FMD in Sub-Saharan Africa”**



- Provides

- free laboratory FMD diagnosis to Africa
 - free technical support during field investigation and sample collection
 - Disease surveillance and vaccine matching
- Facilities used for training of officials on FMD Diagnosis (capacity building & standardisation)



CONTRIBUTION TO BVC & ACHIEVEMENTS



Provision of request tools

- Provision of safe/efficient/cost effective relevant animal vaccines against animal diseases of economic importance (Tad's): **FMD/Anthrax/ QE/PPR/CBPP**
- Vaccines are important tools for protecting/treating /eradictaion of animal diseases (**global eradication of RP**)
- Vaccination contributes to :
 - animal health/production & welfare as well as public health/food safety
 - poverty alleviation through sustainable livestock production & improvements of livelihoods



Key achievements in FMD vaccine Production

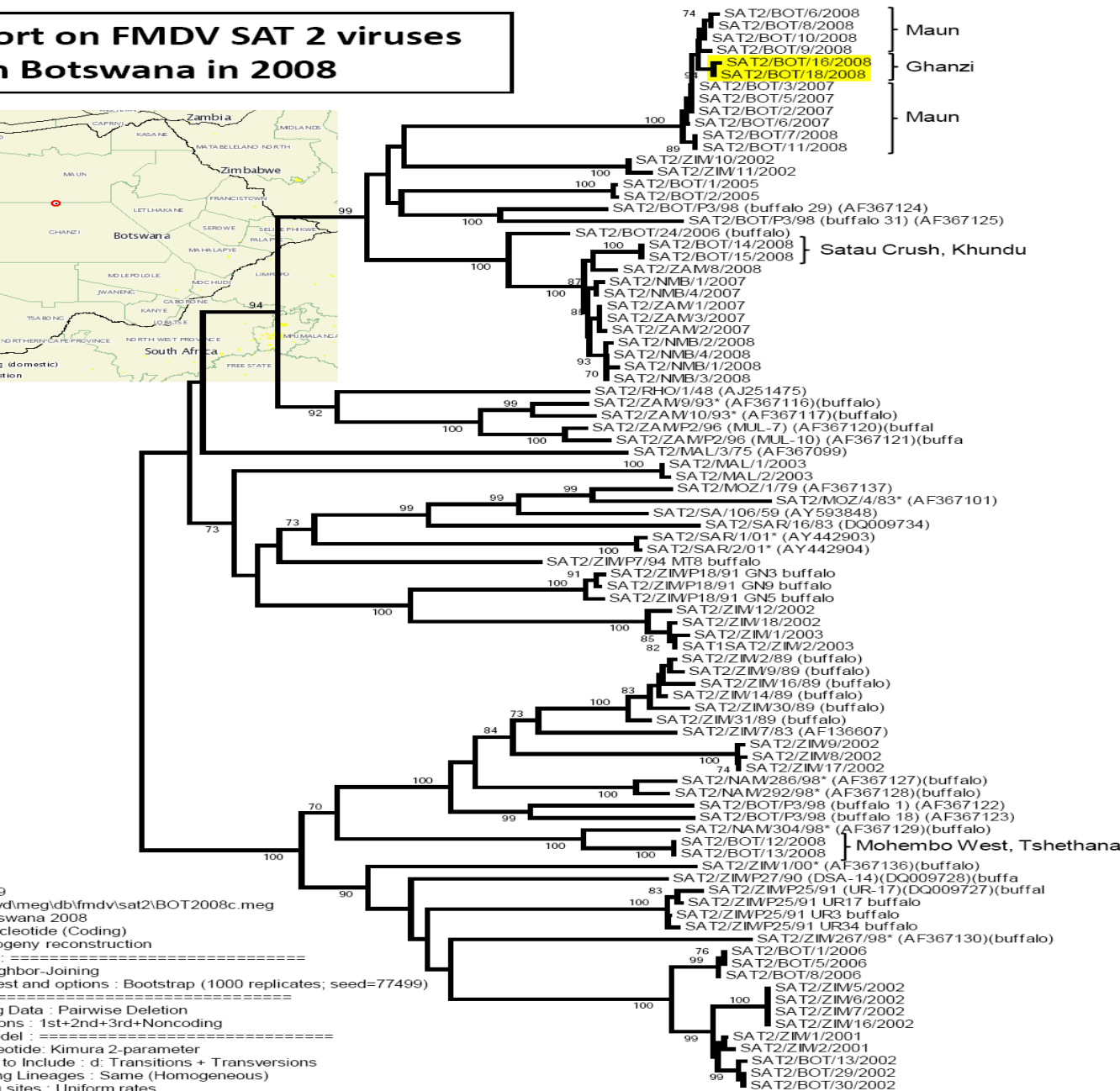
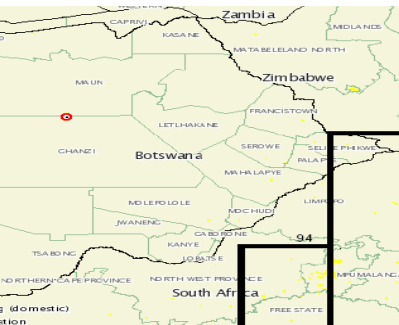
- BVI has acquired **scientific** and **technical** knowledge and extensive **experience in FMD vaccine production**
- As Manufacturers BVI follows internationally accepted principles of **Quality Assurance** and **Good Manufacturing Practice** as a minimum prerequisite.
- Has the know how to **select** and **adapt** new vaccine strains, how to **cost-effectively** make vaccines out of them, at the required level of **potency** and **purity**.
- As **Manufacturer ability** for a **timely** supply of **affordable** and **fit-for-purpose** vaccines **in Botswana and Region is critical to sustain BVC**

Adaptation of new strain from Ngamiland (Habu): vaccine matching (2008-10)

- Mini-bioreactor



Report on FMDV SAT 2 viruses in Botswana in 2008



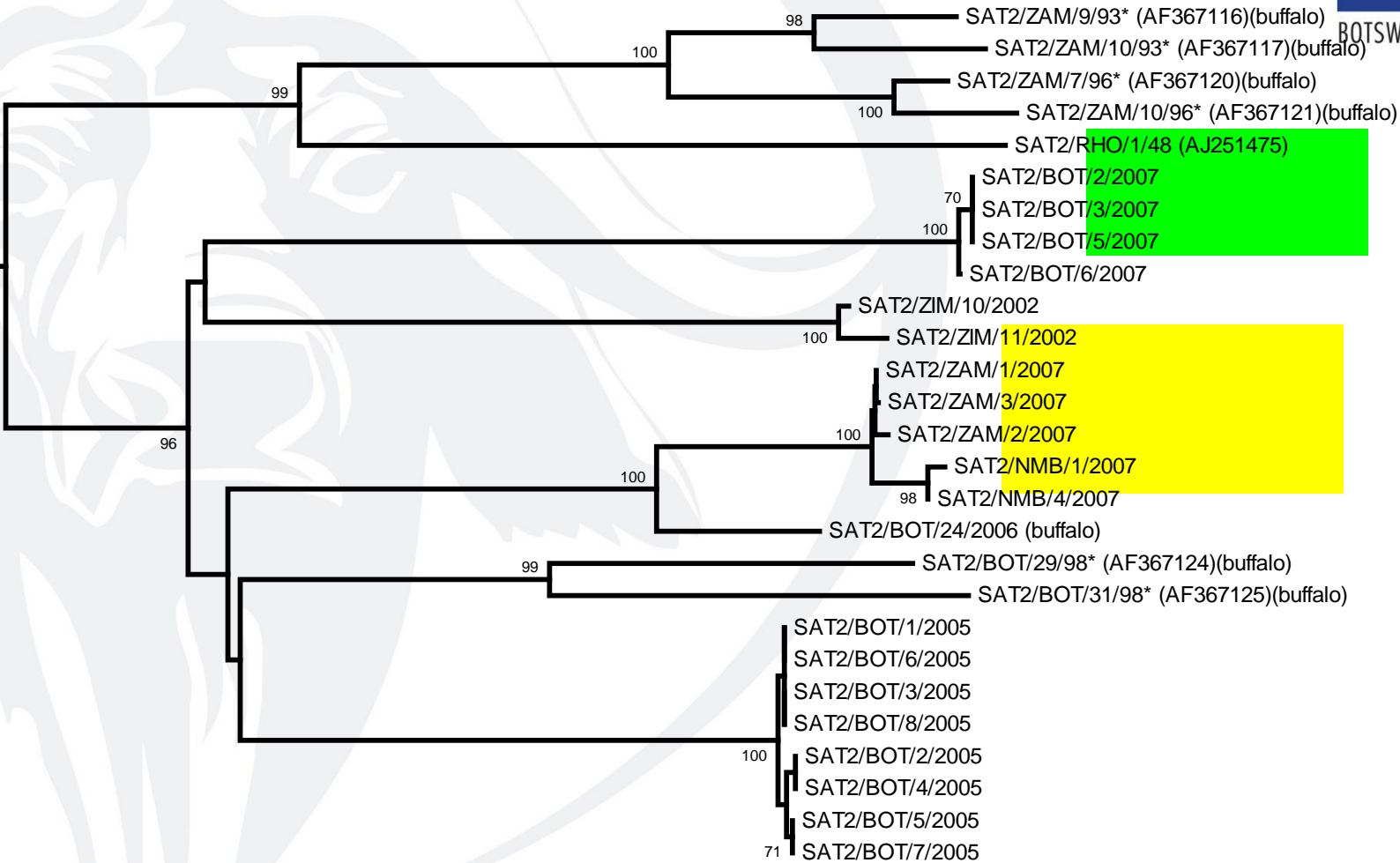
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 d/meg/db/fmdv/sat2/BOT2008c.meg
 Botswana 2008
 cleotide (Coding)
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 48
 o Reps = 1000

0.05

N.J. Knowles, K. Ebert & J. Wadsworth, 01 December 2008

UTIONS

Relationship between outbreaks of FMDV type SAT 2 in Botswana, Namibia and Zambia in 2007



Mid-point-rooted Neighbor-joining tree (Kimura 2-parameter model)
constructed using MEGA 3.1 based on complete VP1 nt sequences.

N.J. Knowles & J. Wadsworth, WRLFMD, January 2008

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Technology & Capacity Improvements



Cells preparation from frozen bags in the cells lab



Modern FMD virus lab



“HIGH” VERSUS “REGULAR” POTENCY (fit-for-purpose)

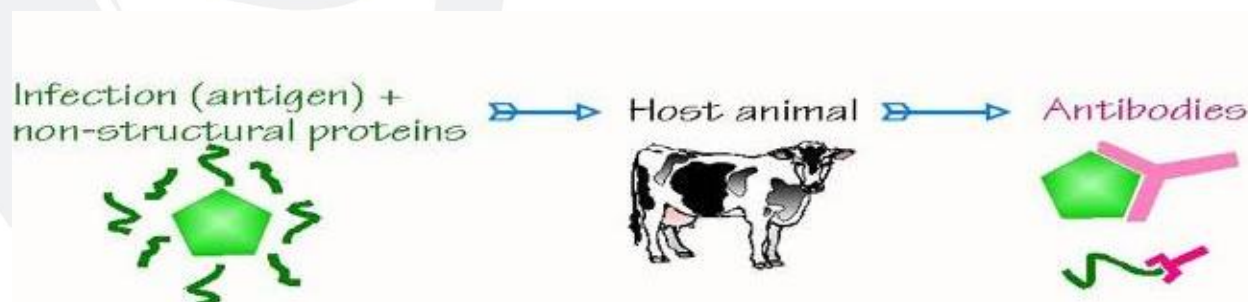
- “HIGH” (>6 PD50) Potency vaccine have been proven to **protect** cattle **as early as four days post-vaccination** when tested by contact challenge. They are particularly useful in **emergency situations** when vaccines are finished from antigens held in a bank and injected to naïve animals.
- “REGULAR” (>3 PD50) Potency vaccine are recognized as **fit-for-purpose** when consistently used in **endemic settings** in view of controlling **clinical disease**.



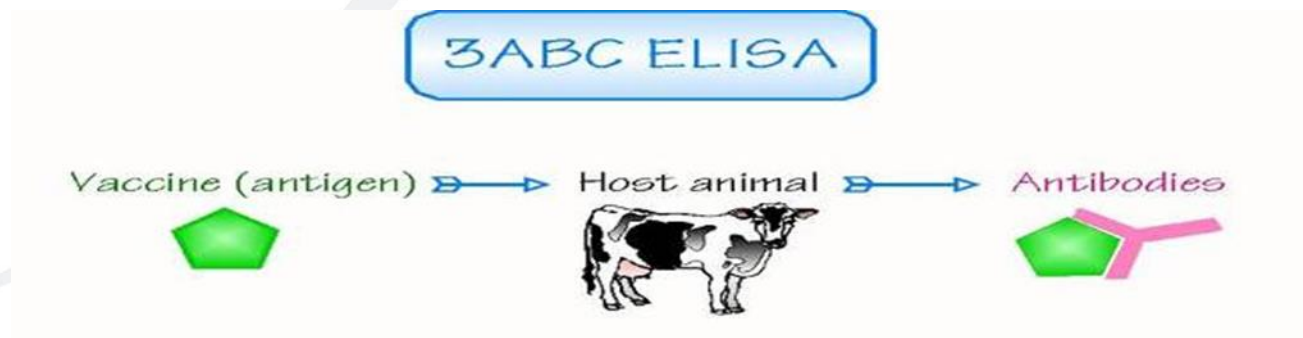
Use of DIVA vaccines & principles

- ▶ DIVA prevents “total stamping out” to eradicate
- ▶ The vaccine allows differentiation between vaccinated and infected animals
- ▶ This will allow international recognition of specific areas as “FMD free with vaccination zone (s)”

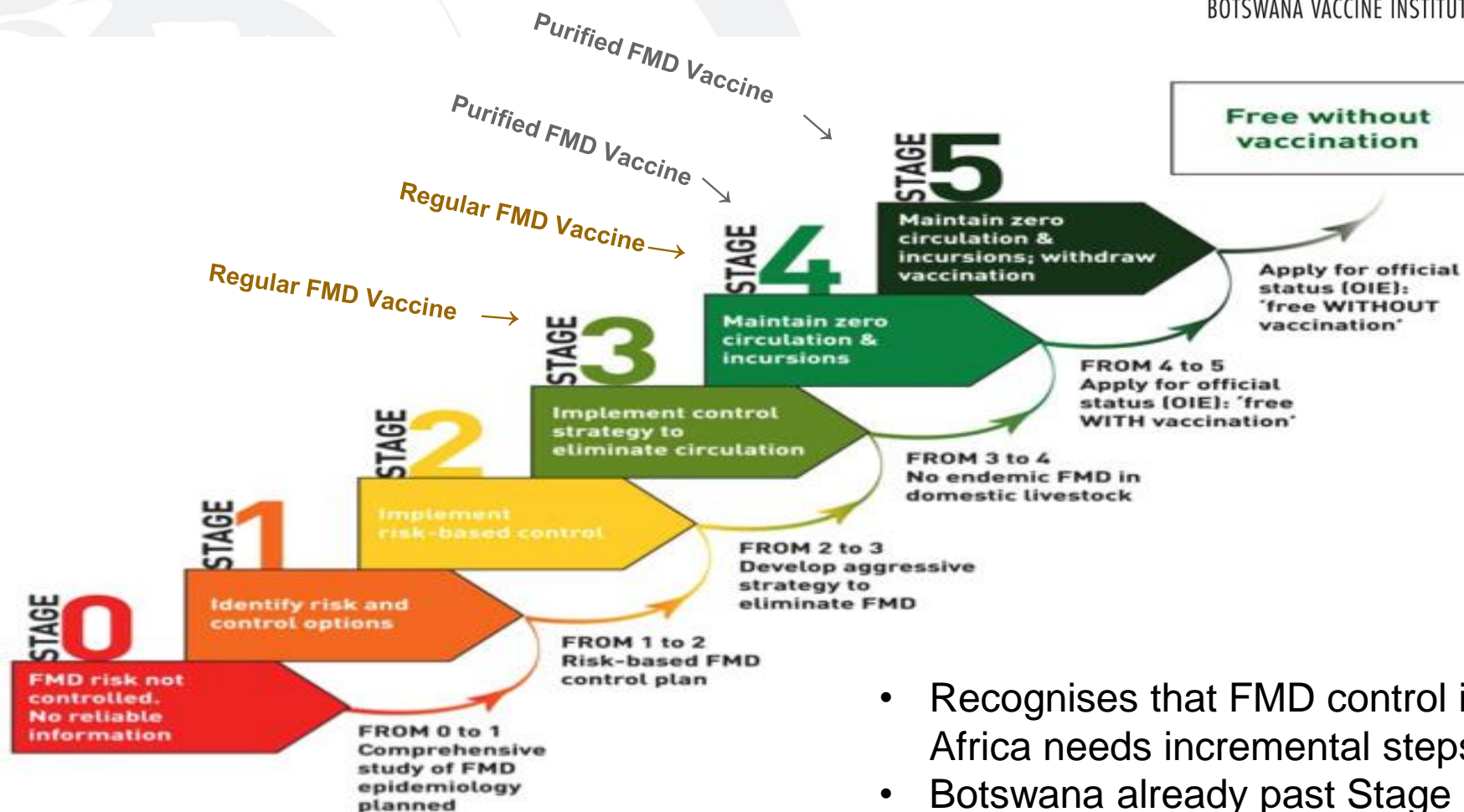
▶ Conventional



▶ Purified

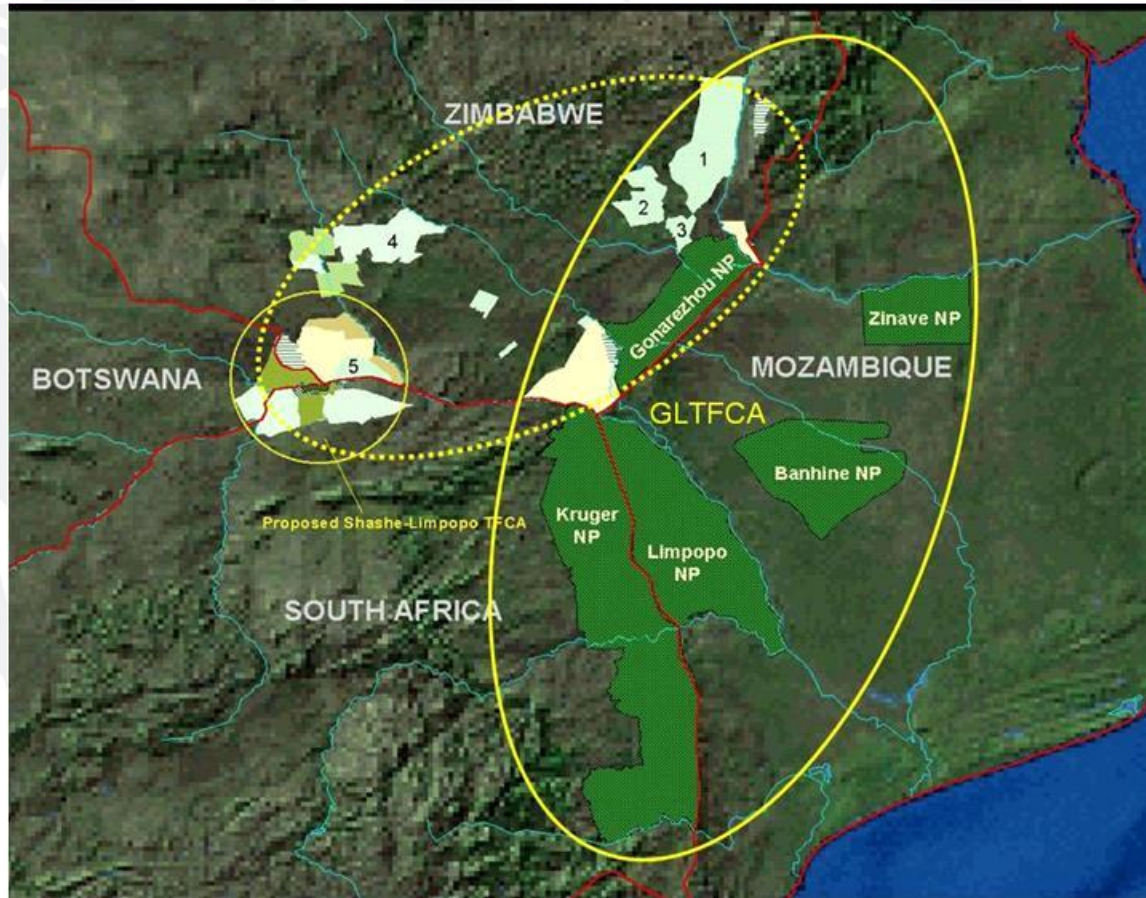


Progressive Control Pathway

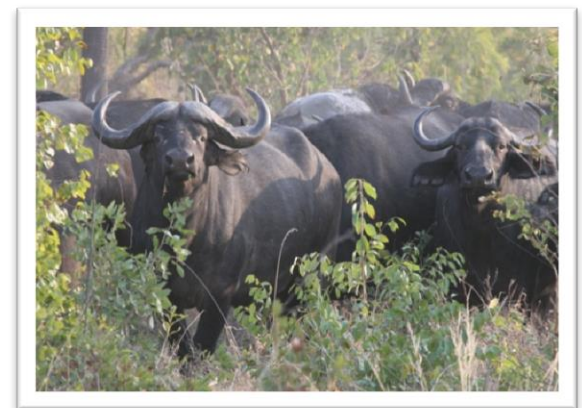


- Recognises that FMD control in Africa needs incremental steps
- Botswana already past Stage 5

SADC Trans frontier Parks

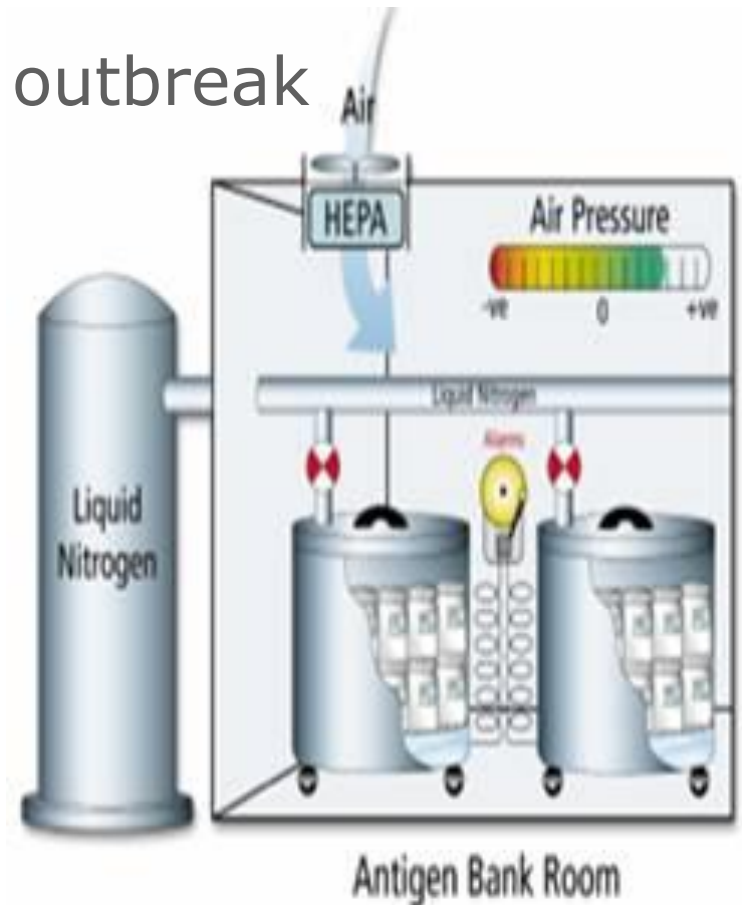


- Creation of human, wildlife & livestock conflicts in the region
- Increase in wildlife numbers - Elephants
- Possibly more outbreaks

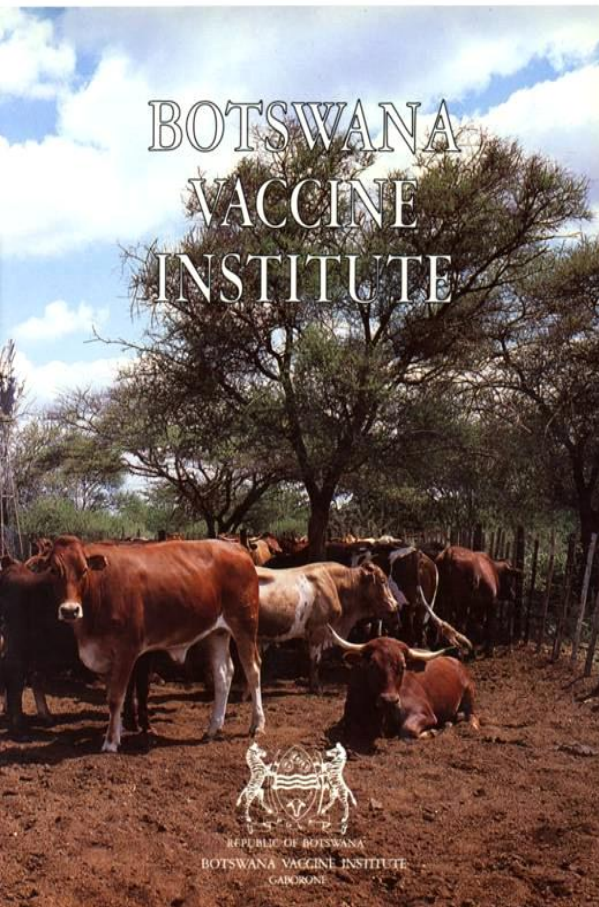


Timely Delivery:> Antigen Banks

- Emergency reserves of FMD purified active ingredients.
- Ag to be defrosted in case of outbreak
- -196 ° C storage
- Flexibility
 - Potency
 - Dose volume
 - Adjuvant
 - Quick response
 - Batch size

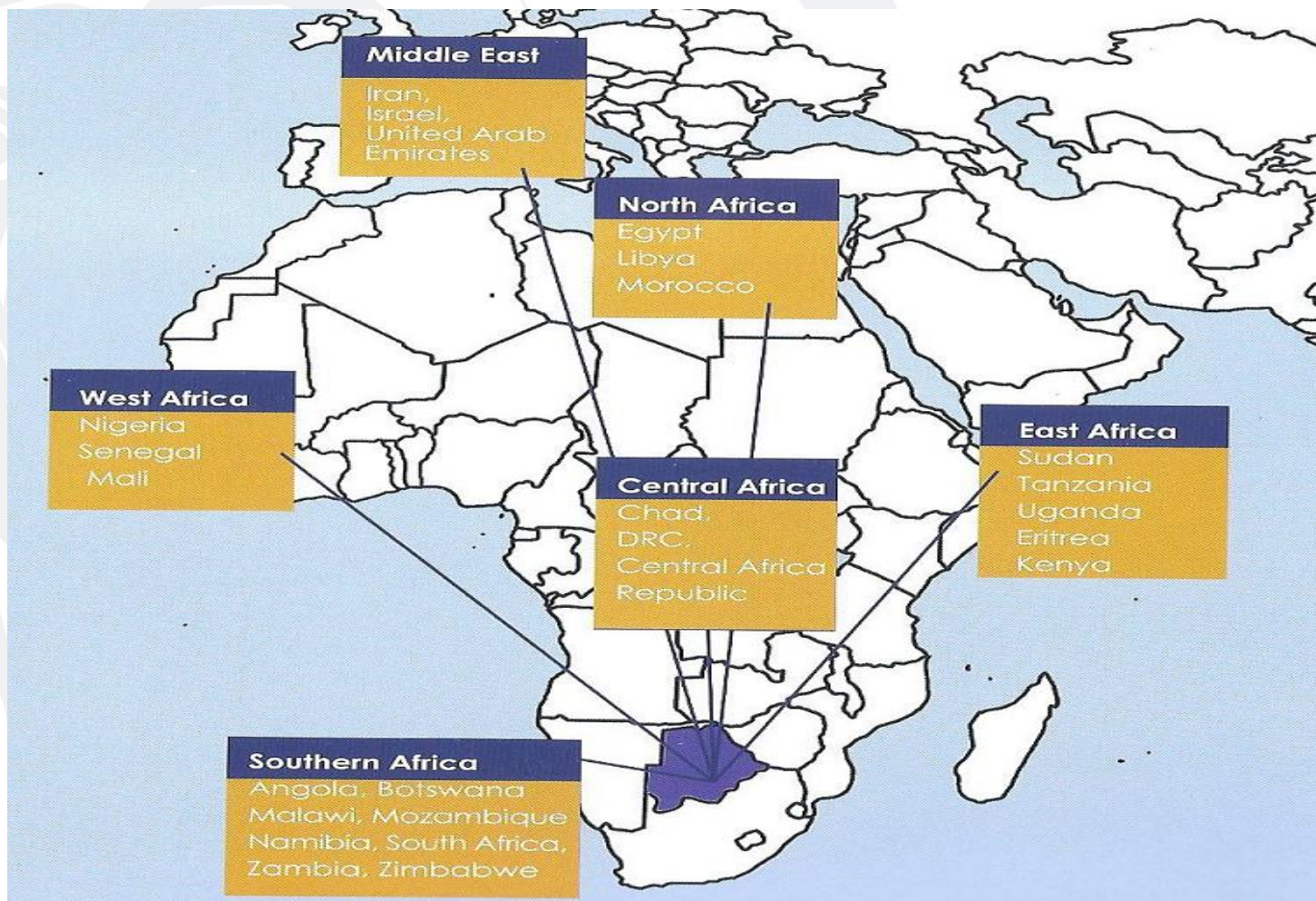


Conclusion



- Vaccination profoundly influence and improve world health & continue to be fundamental tool to meet animal health challenges for trade
- Focus on herd health through prevention/treatment of trans-boundary animal diseases (TAD's) to Promote
- **BVI facilities properly equipped for handling infectious viruses (diagnosis/vaccine production) to protect the region from devastating animal diseases (surveillance-control-prevention)**
- **BVI contributed to global RP eradication**
- **There are challenges which need to be addressed**
- Stakeholder consultations is key for the sustainability of BVC

Our Foot Print 2007-2014



Contribution towards bio-diversity!!!!



THANK YOU FOR YOUR ATTENTION

www.bvi.co.bw



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