Eswatini Foot and Mouth Disease (FMD) Control Programme

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MINISTRY OF AGRICULTURE
Department of Veterinary and Livestock Services

Version Control Table

Version	*Date*	*Author/Compiled By*	*Amendments*
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Eswatini Foot and Mouth Disease (FMD) Control Programme

1. Executive Summary

In May 2025, the country's 24-year recognition of FMD-free zone (without vaccination) was officially suspended by the World Organisation for Animal Health (WOAH) following an outbreak which occurred in the Shiselweni region in the southern part of the country. Since then, the disease has spread to all 4 regions of the country with a concurrent circulation of both SAT 1 and SAT 2 viruses. The introduction and subsequent spread has been aggressively fuelled by traditional communal grazing systems, shared water points, and illegal livestock movements across porous, damaged border fences with neighboring countries who are currently experiencing their own outbreaks.

The country's livestock sector is vital for food security, rural livelihoods, and trade in beef, a key export commodity under preferential trade agreements with the European Union and other international markets.

A robust control programme is therefore required to halt the domestic chain of infection before FMD becomes endemic. This Control Pprogramme, aims to progressively reduce and eliminate FMD circulation in Eswatini through risk-based vaccination, strengthened surveillance, and strict movement control. The long-term goal is to achieve and maintain WOAH-recognised FMD freedom without vaccination.

2. Background and Rationale

The country has experienced three outbreaks in the last 50 years. These were in 1965, 1969, 2000 and this one (2025) is the fourth outbreak. In all these outbreaks, the country opted to eradicate the disease as soon as possible and invested in the maintenance of its freedom. The eradication strategy has always been an intricate combination of containment of the Guard Area (Outbreak Area), vaccination and culling.

Since its last occurence in 2000/2001—which was eradicated via a modified stamping out strategy involving both vaccination and culling—the country enjoyed a decade of FMD-free status (without vaccination) starting in 2010. However, this status was lost in May 2025 following an introduction in Mkhwakhweni area from KwaZulu-Natal (KZN). To date, the country has faced five distinct incursions from South Africa and potentially Mozambique, entering through the following points:

- South (KZN): Sikhwebezi (Hluti), Nkonjane (Mambane), and Zombodze/Maphumzane (Nhlangano).
- West/North (Mpumalanga): Ntsakane (Lundzi).
- Northeast: Ntsinini (Zinyane).

Laboratory analysis confirmed the KZN introduction as SAT 2 virus, while the eastern incursion was identified as SAT 1. Although the clinical disease is identical, these causative

viruses are serologically distinct; typing for the northern incursions was not done but causative virus was linked serologically to SAT 1. Post-introduction, the virus has spread via both legal and illegal movements of susceptible livestock, animal products, and contaminated fomites to other areas in the country. Since its introduction, emergency vaccination campaigns have been deployed, supported by sanitary cordon fences and enhanced surveillance.

The introduction of the disease disrupted the nation's highly lucrative beef export market. The outbreak led to immediate suspension of beef exports to regional markets as well as international markets like the EU, Norway, UK and Taiwain. This macro-economic disruption cascades directly down to the grassroots level, heavily reducing farmer incomes. Because livestock functions as the primary financial asset and safety net for the majority of Eswatini's rural population, prolonged quarantine measures, market closures, and decreased productivity strip smallholder and commercial farmers alike of their livelihoods. Ultimately, these compounding pressures profoundly undermined national food security.

The Control Programme is aligned with the SADC Regional FMD Roadmap and the FAO/WOAH Progressive Control Pathway (PCP-FMD).

3. Objectives

The overall obejctive is to progressively control and eliminate FMD circulation in Eswatini and regain WOAH-recognised freedom without vaccination.

Specific Objectives:

- Achieve >80% vaccination coverage in high-risk clusters.
- Strengthen laboratory and epidemiological capacity for early detection.
- Reduce clinical outbreaks by 70% within a year.
- Enhance farmer awareness and compliance with movement control.
- Prepare and submit a WOAH dossier for recognition of FMD freedom.

4. Programme Components

4.1 Legal and Institutional Framework

- Veterinary Authority: Department of Veterinary & Livestock Services (DVLS), Ministry of Agriculture together with National Disaster & Risk Management Agency (NDRMA)
- Mandate supported by;
    - Animal Diseases Act 7/1965, with The Stock Diseases Regulation 1933 and related statutory instruments.
    - Veterinary Public Health Act 17/2013
    - Livestock Identification Act 13/2001

- FMD Contingency Plan
- Guidelines of the National Veterinary Services

- Enforced through Veterinary Services, Royal Eswatini Police, Umbutfo Defence Force and Local Authorities.

4.2 Epidemiological Knowledge

Two serotypes, SAT 2 and SAT 1 are currently circulating with SAT dominating. SAT 2 is restricted to the southern part of the country and has since been contained. SAT 2 virus has only affected cattle whilst SAT 1 had a spill over to pigs. Drivers of the spread of the disease are Informal cross-border livestock movements, communal grazing, and cordon fence vandalism. Diptanks along the borders with South Africa and Mozambique are considered to be high risk as both countries are currently having outbreaks.

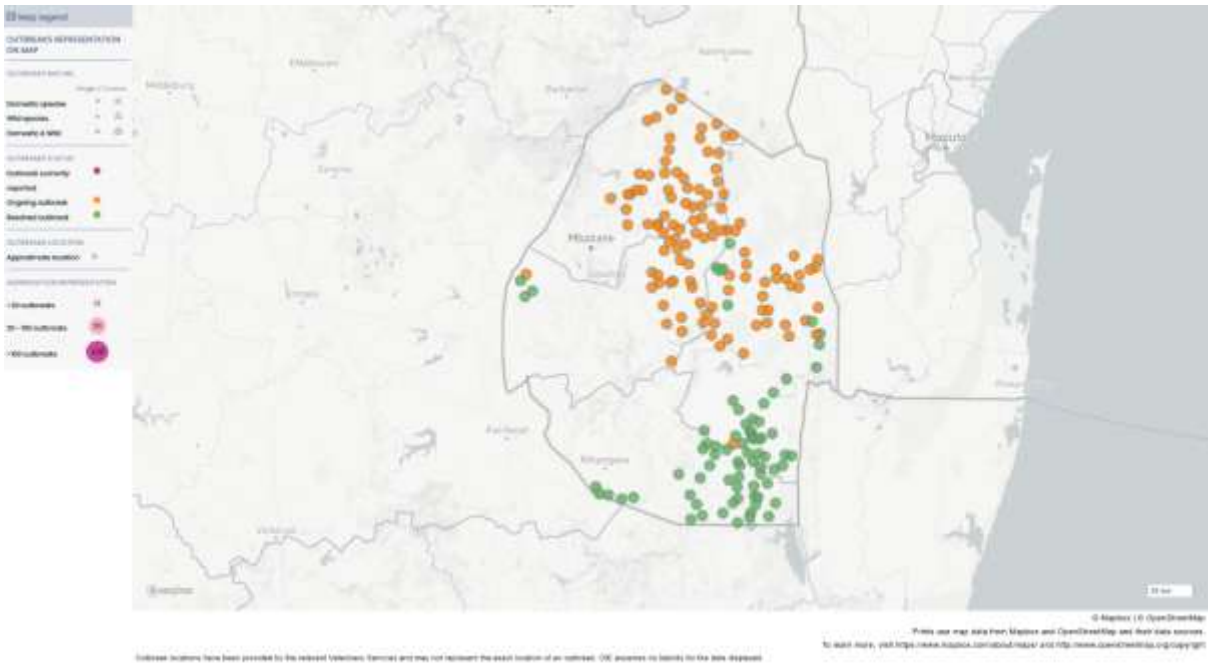

Figure 1: Map showing FMD outbreaks

4.3 Surveillance and Reporting

Passive and active surveillance will be maintained throughout the programme to ensure the rapid detection and response to any new FMD outbreaks, with the objective of minimizing the time between disease occurrence and detection. Community awareness campaigns will encourage farmers and livestock keepers to report suspected FMD cases immediately, while veterinary officials will investigate all reports within 24 hours. Laboratory confirmation will be undertaken for all clinical suspects detected in new outbreak areas.

Surveillance will target all susceptible animal species, using the dip tank area as the epidemiological unit. Suspect cases include animals exhibiting lameness, excessive salivation, or oral and foot lesions. Clinical cases are animals diagnosed by a veterinarian with

characteristic FMD lesions, while confirmed cases are clinical cases that test positive through serology and/or virus isolation and identification.

Passive surveillance will be implemented through the National Dip Inspection Programme, routine veterinary clinic activities, farmer reports, inspections at livestock loading points, ante-mortem and post-mortem examinations at abattoirs, and serological sampling of slaughter animals. Active surveillance will focus on high-risk and vaccinated areas, as well as wildlife populations, and will include post-vaccination monitoring to evaluate vaccine effectiveness and detect any evidence of virus circulation.

Diagnostic testing will be conducted at the Central Veterinary Laboratory using validated NSP-ELISA assays suitable for Southern African FMD serotypes. To ensure quality assurance, 10% of samples will be randomly selected for inter-laboratory verification at WOAH Reference Laboratories.

Surveillance findings will be reported through established regional and international reporting systems, including weekly notifications to WOAH WAHIS and monthly submissions to SADC LIMS and AU-IBAR ARIS.

4.4 Control Measures

In response to the nationwide spread of the disease, the Ministry adopted a comprehensive, Integrated Control and Eradication Strategy. This multi-pronged approach is designed to suppress viral circulation and restore the country's FMD-free status through the following strategic pillars:

- **Mass National Vaccination:** Implementing a systematic, vaccination program for all susceptible cattle populations to establish herd immunity in targeted areas.
- **Movement Control, Surveillance, & Biosecurity:** Enforcing strict quarantine protocols, establishing strategic checkpoints, and maintaining intensive clinical and serological surveillance to identify and contain new infections rapidly.
- **Infrastructure Strengthening:** Reinforcing sanitary cordon fences and physical barriers along high-risk borders to prevent the transboundary introduction of the virus.
- **Awareness & Stakeholder Communication:** Executing community-level sensitization campaigns to educate farmers on disease transmission, the importance of biosecurity, and the necessity of timely disease reporting.
- **Regional Collaboration:** Strengthening trilateral technical cooperation with neighboring Veterinary Services to harmonize disease control policies and unify cross-border defense efforts.

Vaccination Strategy

Since the outbreak began in May 2025, the Ministry implemented a Control Strategy centered on a vaccinate-to-live approach. This method utilizes a trivalent vaccine to establish herd immunity while avoiding mass culling. The Ministry sourced a trivalent vaccine from the Botswana Vaccine Institute (BVI), covering all three SAT serotypes. A two-dose regimen (administered 30 days apart) is done. The strategy involves vaccinating all cattle within a 10-20km radius of an outbreak area.

With spread of the disease to other regions, the Ministry developed an Integrated Control and Eradication Strategy. In line with this Strategy, vaccination will be implemented in a 3-phase approach with the objective being to;

- eliminate the circulation of FMD virus (FMDV)
- reduce clinical disease incidence
- establish a high-level of population immunity (minimum 80% coverage)

The vaccination will utilize a trivalent vaccine containing SAT 1-3 strains that are antigenically matched to circulating field strains, as prescribed in the WOAH Terrestrial Manual.

Phase 1 – Outbreak Containment

Priority will be given to areas with active outbreak zones. Targeted ring vaccination will be done to halt the spread of the virus and create protective buffers. The following foci have been identified for immediate intervention:

- **Shiselweni Region:** Ntimakati and Zombodze/Maphumzane
- **Lubombo Region:** Siphofaneni and Nhlangano
- **Hhohho Region:** Nsakane (Lundzi), Zinyane, Mphameni, and Nyonyane
- **Manzini Region:** Mliba, Luve, Ngculwini, Manzini and Sidvokodvo

The map below shows the rings around the affected areas, and a barrier line in which all dip tanks along that corridor will be vaccinated

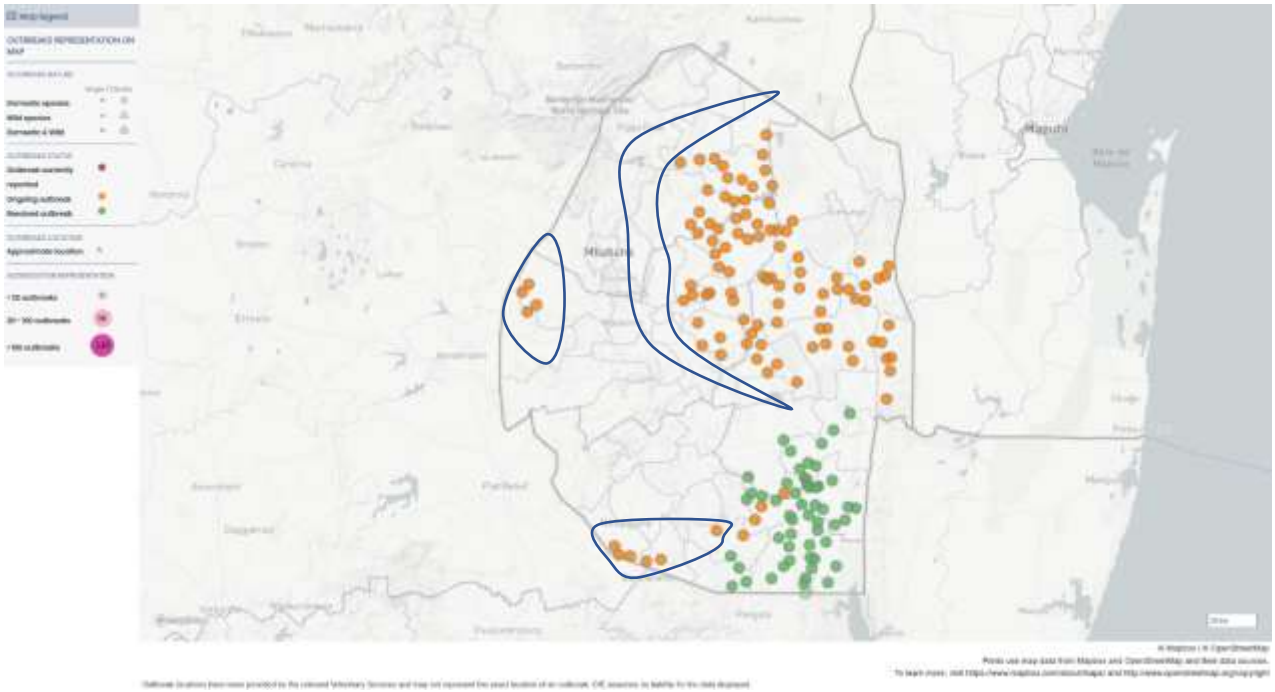

Figure 2: Map of demarcated rings for phase 1 vaccinations

The table below shows a summary of the dip tanks around the current focis which will be targeted for ring vaccination in order to stop the spread of the FMDV. However, it is worth

noting the disease is currently progressing with speed in some areas and as such there may be need to shift the barrier line further west and north, as the disease progresses.

Most of the dip tanks will be receiving their first dose vaccination, hence must be revaccinated 28 days later, and a few will be receiving their 2nd booster dose.

Table 1. Summary dip tanks and cattle population targeted for ring vaccinations

Area	Population	Diptank
Lundzi	18792	31
Luve	29489	34
Sidvokodvo	21485	41
Malndzela/Mayiwane	43599	50
Shiselweni	30136	44
Zinyane	12519	14
Total	**156020**	**214**

Phase II – Blanket and Barrier vaccination

The second phase of vaccinations will constitute of all dip tanks east of the barrier line on Figure 2 above towards the frontier with Mozambique and RSA. Considerations will also be given to cattle > 6 months post vaccination and dip tanks along the frontier nationwide. Vaccination strategies to be employed are:

- Blanket vaccination of all cattle in these areas.
- Booster vaccination of cattle vaccinated ≥6 months previously within outbreak and buffer zones.
- Barrier vaccination of cattle in high-risk zones along international borders

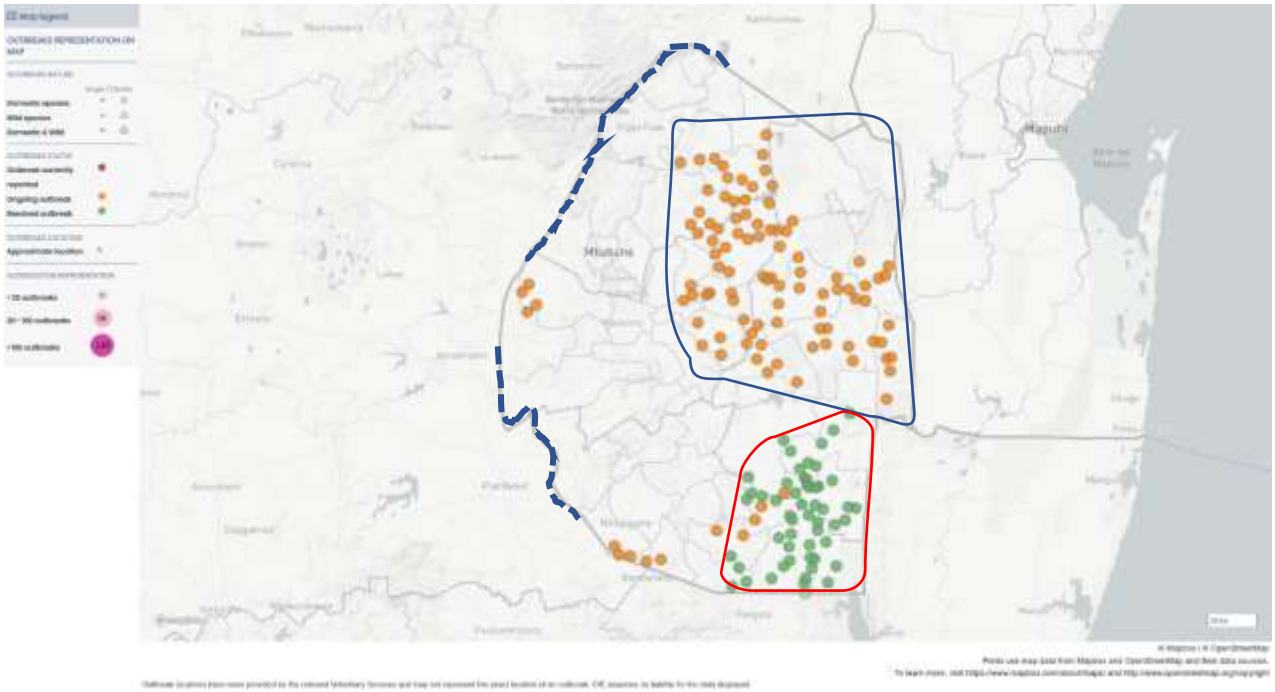

Figure 3: Map of demarcated area for phase two vaccinations

The mass vaccination in the blue ring will cover all dip tanks under the following subregions:

- **Manzini**: Mliba, Luve, Manzini, Ngculwini, Sidvokodvo. This targeted area has a combined total of **197 dip tanks**, and estimated total of **125 000 cattle.**
- **Lubombo**: Malidza, Siteki -1, Siteki -2, Siphofaneni, Lomahasha, Tikhuba. This targeted area has a combined total of **153 dip tanks**, and an estimated total of **112 000 cattle.**

The red ring is the **Shiselweini and Lubombo** regions: Hluthi-Lavumisa-Lubuli corridor, where some dip tanks are now on the 4-6 months period and need to be given a booster shot to maintain immunity until the disease is in control. There is an estimate of **100 000 cattle** in this corridor.

The dotted lines are diptanks at high risk of disease introduction from South Africa based on the prevailing epidemiological situation. This targeted area has a total of 24 diptanks and an estimate of **20 000** cattle.

Table 2. summary populations for phase 2 vaccinations

Area	**Populations/ Doses**	**Doses**
Manzini region	125 000 * 2	1st + Booster
Lubombo region	112 000 * 2	1st + Bosster
Hluthi – Lavumisa -lubuli	100 000	Booster
High risk diptanks in frontier line	20 000 * 2	1st + Booster
Total	**614 000**	

Phase III – Reactive Ring vaccination

Phase III transitions from a proactive, blanket approach to a reactive, intelligence-led deployment. A protective ring will be established around any new, isolated detections to eliminate the virus before it spreads.

Implementation

Vaccination Targets & Timeline

To ensure high-level population immunity and eliminate virus circulation, the following metrics are non-negotiable:

- **Total Vaccine Doses:** 910,000 units.
- **Weekly Throughput:** 58,000 animals.
- **Duration:** 4 months (to cover primary and booster phases).
- **Work Schedule:** 5 days per week.
- **Teams:** 16 to 20 teams.

Human Resources & Team Structure

16–20 teams to be deployed using a blended workforce to address the scale of the outbreak:

- **Core Staff:** Current Veterinary Officers (VOs) and Veterinary Assistants (VAs).
- **Surge Capacity:** Recruitment of retirees and currently unemployed VAs, VOs and other personnel.
- **Team Composition:** Each team consist of a team leader (VO), supervisor (Animal Health Inspector) and 8 (vaccinators, recorders, branders) other members.

Logistics & NDMA Collaboration

National Disaster Risk Management Agency (NDRMA) will provide vaccination logistics under the following categories:

Category	**Requirements**
Camping & Subsistence	Camping/lodging sites for teams and daily meal provisions.
Cold Chain & Supplies	Vaccination guns, needles, and specialized coolers to maintain vaccine integrity.
Transport	vehicles for each team + fuel allocation for 4 months.

Category	Requirements
Biosecurity	Full PPE (overalls, boots) and disinfectants

Action Item: Communicate these requirements to NDMA in writing immediately. Specific challenges (e.g., vehicle shortages or cold chain gaps) must be documented and escalated to the Honorable Minister if not resolved within 7 days.

Vaccine Procurement & Alternative Sourcing

Given previous shortages, the vaccine supply chain will be diversified to ensure the 910,000-dose target is met:

1. **Botswana Vaccine Institute (BVI):** will be maintained as the primary supplier. Weekly demand updates to be provided to ensure there are no stock-outs
2. **Saudi Arabia:** Follow up on the pending response regarding potential emergency donations or subsidized procurement
3. **Argentina (Biogenesis Bagó):** Evaluate as a high-priority alternative.
    - **Criteria:** Must be PANVAC certified and WOAH compliant.
    - **Verification:** Confirm cost-effectiveness, delivery lead times, and antigenic matching with local SAT 1 and SAT 2 strains.

Movement Control

Vaccination will be implemented in conjunction with movement controls and disinfections, including:

- Declaration and enforcement of Guard Areas and Scheduled Areas
- Checkpoints, permits, and enforcement by veterinary services and security agencies
- Quarantine and movement restrictions for all susceptible livestock, with the sole exception of animals designated for direct-to-slaughter purposes. These animals must be transported under veterinary escort, following established biosecurity protocols, to minimize the risk of viral spread during transit.

Figure 4: Map showing checkpoints

Infrastructure Strengthening

This will include rehabilitation of Sanitary Cordon Fences. The primary objective of the rehabilitation is to curb the spread of transboundary animal diseases by restricting livestock movement. The rehabilitation will include infrastructure development, community engagement, and technical capacity building. The core components will be;

Infrastructure Rehabilitation: Systematic repair and construction of cordon fences to ensure a secure physical barrier.

Logistical Support: Establishing dedicated campsites to facilitate ongoing monitoring and maintenance.

Stakeholder Empowerment: Hosting workshops for community members, Traditional Leaders, and Community Police to align on policy, information management, and fence security.

Technical Training: Providing Cordon Guards with practical workshops on fencing techniques and the professional use of fencing equipment.

Figure 5: A map illustrating Sanitary Cordon fences

Double Cordon Fence (100m apart)

- Stretches from Mambane to Matsamo
- ~ 170 Km long
- Outer Fence is 10 strands of barbed wire
- Inner Cordon is Veldspan
- 55 cordon camps with structures

Single Cordon fence

- Stretches from Lufafa to Lavumisa
- ~ 275km long
- 12 strands of barbed wire
- 24 cordon camps with only 5 having structures

The Sanitary Cordon fences were erected and maintained mainly in the eastern frontier due to the high risk of FMD introduction of FMD from Mozambique. The fences were supplemented in country by the redline which separated the eastern part from the rest of the country. There has never been a fence along the Lubombo mountain range. A single fence from Lufafa mountain to Lavumisa via Sicunusa separated Eswtaini from South Africa.

To ensure the rapid establishment of the cordon fences, the fencing must be completed within a year. To meet this tight deadline, 15 dedicated fencing teams of 15 people must be deployed to allow for simultaneous work across multiple sections of the perimeter.

Total fence length: 445 km
Section 1: 170 km – **10 strand barbed wire + 1 Veldspan mesh**
Section 2: 275 km – **12 strand barbed wire only**

Stakeholder Engagement

Enhanced awareness and sensitization campaigns targeting livestock farmers, herd managers, and high-risk border communities will be launched. The initiative will focus on three critical pillars:

- **Risk Education:** Clarify how viruses spread through direct animal-to-animal contact, contaminated products, and "fomites" (such as infected clothing and equipment).
- **Access Control:** Promote the immediate implementation of simple hygiene measures, specifically limiting unauthorized entry to farms, kraals and livestock pens.
- **Sanitation Protocols:** Standardize practical biosecurity habits, including the regular cleaning and disinfection of footwear, tools, and shared equipment.

Regional Transboundary Coordination

In order to address the current transboundary challenges, there will be a high-level policy dialogue with key domestic stakeholders, including the Border Adjustment Committee and the Ministries of Foreign Affairs and Home Affairs. This will then initiate dialogues with political representatives from neighboring countries to review and update existing cross-border agreements. Trilateral technical cooperation with neighboring Veterinary Services to harmonize disease control policies and unify cross-border defense efforts will be strengthened.

4.5 Resources and Logistics

- **Human Resources**: Required are Veterinarians, Animal Health Technicians and laboratory staff. NDMRA to engage retired personnel and unskilled personnel to supplement.
- **Financial Resources**: National budget allocation, with FAO and SADC technical support.
- **Infrastructure**: Cold chain for vaccines, mobile patrol units, diagnostic equipment, sanitary cordon fences, Check Points.

5. Implementation Plan

Timeline	Activity	Key Deliverables
Month 0	Outbreak confirmation and response	Declare infected zone, activate Incident Management System, movement controls, surveillance, public awareness
Months 0–12	**Sanitary cordon fence rehabilitation**	Repair and reinforce entire sanitary cordon fence, strengthen maintenance programme, improve wildlife-livestock interface management
Months 0–2	Vaccine procurement and logistics	Vaccine matching completed, procure vaccine, cold chain verification, vaccination teams trained
Months 1–4	**Vaccination Campaign**	Complete first vaccination of all target cattle population
Months 2–5	Second vaccination (30 days after first dose)	Complete booster vaccination to achieve >80% coverage
Months 1–12	Enhanced outbreak surveillance	Active clinical surveillance, rapid investigation of suspect cases, laboratory confirmation, movement permit audits
Months 4–7	Allow outbreak to burn out under movement control	Clinical cases progressively disappear following immunity development and movement restrictions
Months 6–12	Targeted serological surveillance (NSP)	Demonstrate absence of virus circulation in vaccinated populations and verify vaccination coverage
Months 9–12	Risk-based surveillance in high-risk areas	Wildlife interface surveillance, abattoir surveillance, market surveillance, participatory disease searches

Timeline	Activity	Key Deliverables
Month 12	**Twelve months without clinical cases achieved**	Official declaration of no clinical FMD for 12 consecutive months
Months 12–15	Compilation of WOAH dossier	Epidemiology report, surveillance data, vaccination report, laboratory evidence, movement control documentation, contingency plans
Months 15–16	Internal technical review	National review and quality assurance of application
Months 16–17	Regional peer review	Review by SADC/FAO/WOAH experts before submission
Month 18	Submit application to WOAH	Official application for recognition of FMD-free status
Months 18–24	WOAH assessment process	Respond to technical queries, provide supplementary evidence, maintain surveillance and reporting until decision

6. Monitoring and Evaluation

- Indicators: Vaccination coverage %, outbreak frequency, Sero-surveillance results.
- Reports to WOAH (weekly, semestrial, annual, SADC, AU-IBAR
- Mid-term review by external partners (FAO/SADC).

7. Risk Management

- **Risks**: Vaccine shortage, farmer resistance, porous borders, fence vandalism.
- **Mitigation**: Maintain buffer stock, community sensitisation, cross-border collaboration, fence maintenance units.

8. Sustainability and Exit Strategy

- Long-term integration into the National Animal Health Strategy.
- Gradual transition from vaccination to vaccination-free zones starting with low-risk areas.
- Regional harmonisation with South Africa and Mozambique to prevent reintroduction.