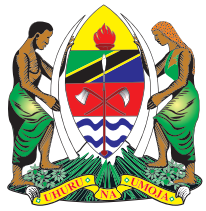
THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF LIVESTOCK AND FISHERIES

ANIMAL HEALTH SURVEILLANCE STRATEGY 2020 - 2024



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ABBREVIATIONS/ACRONYMS

AHE	Animal Health Events
AHS	Animal Health Strategy
AHSA	Animal Health Strategy for Africa
AHSP	Animal Health Strategic Plan
AHSS	Animal Health Surveillance Strategy
AMR	Antimicrobial Resistance
ASDS	Agricultural Sector Development Strategy
ASF	African swine fever
AU-IBAR	African Union Inter-Africa Bureau of Animal Resource
BMGF	Bill and Melinda Gates Foundation
CBEP	Cooperative Biological Engagement Program
CBO	Community Based Organization
CDC	Centre for Disease Control and Prevention
CEO	Chief Executive Officer
CIDB	Centre for Infectious Diseases and Biotechnology
COSTECH	Commission for Science and Technology
CPD	Continuous Professional Development
CVL	Central Veterinary Laboratory
CVMBS	College of Veterinary Medicine and Biomedical Sciences
DDSR	Disease detection, surveillance and response
DSSP	Disease Surveillance System Plan
DTRA	Defense Threat Reduction Agency
DVO	District Veterinary Officer
DVS	Director of Veterinary Services
EAC	East African Community
E-DS	Event Detection System
EMA-i	Event Mobile Application
EU	European Union

E-WARNS	Event Warning Systems
FBO	Faith Based Organization
FMD	Foot and Mouth Disease
GALVmed	Global Alliance for Livestock and Veterinary Medicine
GHSA	Global Health Security Agenda
HAT	Human African Trypanosomiasis
HPAI	Highly Pathogenic Avian Influenza
ICT	Information Communication Technology
IDSR	Integrated Disease Surveillance and Response
IHR	International Health Regulations
IZSAM	*Istituto Zooprofilattico Sperimentale dell' Abruzzo e del Molise*
JEE	Joint External Evaluation
KCRI	Kilimanjaro Christian Research Institute
LFO	Livestock Field Officer
LGA	Local Government Authority
LIMS	Laboratory Information Management System
LINA	Laboratory Infrastructure Network Analysis
LITA	Livestock Training Agency
MA	Ministry of Agriculture
MB	Meat Board
MDA	Ministries, Departments and Agencies
M&E	Monitoring and Evaluation
MITM	Ministry of Industry, Trade and Marketing
MLF	Ministry of Livestock and Fisheries
MHCDGEC	Ministry of Health, Community Development, Gender, Elderly and Children
MP	Member of Parliament
NAP	National Action Plan
NCAA	Ngorongoro Conservation Area Authority
ND	Newcastle Disease
NGO	Non-Governmental Organization

NIMR	National Institute for Medical Research
NLP	National Livestock Policy
NM-AIST	Nelson Mandela Africa Institution of Science and Technology
NSGRP	National Strategy for Income Growth and Poverty Reduction
OH	One Health
OHCD	One Health Coordination Desk
OIE	*Office Internazionale des Epizooties* (World Organization for Animal Health)
PMO	Prime Minister's Office
PO-RALG	President's Office – Regional Administration and Local Government
PPP	Public Private Partnership
PPR	Peste des Petits Ruminants
PVS	Performance of Veterinary Services
PZD	Priority Zoonotic Diseases
RDS	Rural Development Strategy
RVF	Rift Valley fever
RVO	Regional Veterinary Officer
SACIDS	Southern Africa Centre for Infectious Disease Surveillance
SADC	Southern Africa Development Community
SET	Surveillance Evaluation Tool
SILAB	Laboratory Information System for Africa supported by FAO, (SILABFA)
SMS	Short Message System
SOP	Standard Operating Procedure
SUA	Sokoine University of Agriculture
TADs	Transboundary Animal Diseases
TANAPA	Tanzania National Parks
TASAVO	Tanzania Small Animal Veterinary Organization
TAVEPA	Tanzania Veterinary Para-professional Association
TAWIRI	Tanzania Wildlife Research Institute
TDV	Tanzania Development Vision
TLMP	Tanzania Livestock Master Plan

TMA	Tanzania Meteorological Authority
TSAP	Tanzania Society of Animal Production
TVA	Tanzania Veterinary Association
TVLA	Tanzania Veterinary Laboratory Agency
TWG	Technical Working Group
VCT	Veterinary Council of Tanzania
VHF	Viral haemorrhagic fevers
VLT	Veterinary Laboratory Technician
VS	Veterinary Services
WHO	World Health Organization
WTO	World Trade Organization
ZVC	Zonal Veterinary Centre

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PREFACE

It gives me great pleasure to have this long awaited Strategy, which will guide effective and efficient undertaking of animal health surveillance in Tanzania. Development of this Animal Health Surveillance Strategy (AHSS) emanated from recommendations accrued from various missions' reports namely, Performance of Veterinary Services (PVS), Disease Surveillance System Plan (DSSP), Surveillance Evaluation Tool (SET), and the multi-sectoral Joint External Evaluation (JEE). The results of which demonstrated the need to improve on epidemio-surveillance (disease outbreak investigation, reporting, field surveys) and laboratory systems (sample collection, storage, shipment, testing, quality assurance) and their respective networks.

This strategy aligns with national animal frameworks such as Animal Health Strategy (AHS) and the just launched Tanzania Livestock Master Plan (TLMP), and regional and continental animal health initiatives (Animal Health Strategy for Africa, AHSA).

It is envisaged that this AHSS is going to contribute into improvement of the early detection, timely disease reporting, the quality of reports, completeness, representativeness, and hence prompt responses.

This surveillance strategy has set out the Vision, Mission and Strategic Objectives. It also outlines the activities to be conducted for the next five years commencing July 2019 and highlights the key performance indicators as standard measures of the strategy's performance. The strategy takes into account the importance of institutionalization of surveillance system, strengthening of surveillance and diagnostic services, improvement of infrastructure and facilities, utilization of appropriate technological packages, strengthening of financial and human resources management systems, strengthening of institutional arrangement, improving communication and engagement of wider range of stakeholders.

Implementation of the strategy will engage the key ministries of Livestock and Fisheries (MLF), Health, Community Development, Gender, Elderly and Children (MHCDGEC), and Natural Resources and Tourism (MNRT). Other Ministries, Departments and Agencies (MDAs), Parliament, livestock farmers, NGOs, Training institutions, national, regional and global animal health networks and the public at large in the implementation of this strategies of paramount importance. This is owing to a reason that they all have a role to play in enhancing the performance in providing quality and timely information on any disease incidence.

Sincere appreciation goes to FAO for technical support and coordinating the drafting process and USAID for financial support.

Prof. Elisante Ole Gabriel
Permanent Secretary - Livestock

EXECUTIVE SUMMARY

Livestock and wildlife are prime resource for the people and government of Tanzania. The country is the second largest cattle keeping to Ethiopia in the African continent, with estimated population of 33.4 million heads of cattle, 21.29 million goats, 5.65 million sheep, 2.14 million pigs, 38.77 million free-range chickens, 44.51 million commercial chickens, and 657,389 donkeys. Majority of these livestock species are indigenous breeds and are vital component of the mixed farming system whereby they are important for providing milk, meat, eggs, hides and skins, draft power and different kinds of animal byproducts.

Infectious diseases especially the Transboundary Animal Diseases (TADs), priority zoonotic diseases, and vector and vector-borne diseases hamper animal production, productivity and their products. Together these constitute the single most important constraint to the livestock industry in Tanzania. The major TADs include African Swine Fever (ASF), Blue Tongue (BT), Contagious Bovine Pleuropneumonia (CBPP), Contagious Caprine Pleuropneumonia (CCPP), Foot and Mouth Disease (FMD), Avian Influenza (AI), Lumpy Skin Disease (LSD), Newcastle Disease (ND), Peste des Petits Ruminants (PPR), Rift Valley Fever (RVF), and continuous search of the recently (2011) eradicated rinderpest disease. In addition to TADs, Tanzania has earmarked six priority zoonotic diseases (PZDs) namely rabies, anthrax, avian influenza, Rift Valley Fever (RVF), human African trypanosomiasis (HAT), and brucellosis. Furthermore, vectors of veterinary importance include ticks, tsetse flies, mange, and fleas whereas vector-borne diseases of economic importance are East Coast fever (ECF), anaplasmosis, babasiosis, heartwater, and trypanosomiasis.

Effective management of the above diseases requires credible surveillance, dedicated skilled staff supported by good network of surveillance and laboratory system. While several surveillance approaches are in use or have been tried for decades, depending on the objectives and resources in place, the current Tanzanian epidemio-surveillance system, which is 95% paper-based, is prone to several constraints and challenges to be able to adequately address disease challenges. Other challenges include remoteness of data source locations/communities, delayed detection, untimely reporting, and late response to animal health events. Furthermore, underreporting of animal health events is estimated at 90%, incompleteness of reports/data, poor communication among communities, cost of report submission to higher levels, inadequate/absence of feedback and response, lack of/or limited information on infrastructure to support data flow from community to district, region and national levels. In addition, the current surveillance system does not capture data timely from wildlife and private sector contributing to delayed response to events of animal and public health importance.

There is a need to timely collect quality information about disease events in order to understand the disease situation in time and place, support decision-making, prevent potential disease incursion and respond quickly in an emergency way. A system that allows information sharing among relevant agencies at local, national and international levels is of vital importance, underpinning collaboration and coordination cooperation of surveillance activities at the human-animal interface.

Various tools for collecting information about animal health at national, regional and global levels have made significant contributions to the timely reporting of animal disease events, analysis of animal disease drivers and patterns of transmission and spread. Ongoing challenges relate to the sensitivity of surveillance systems for capturing emerging and re-merging disease pathogens. This strategy strive and encourage wider use of electronic based data capturing tools currently under development/ or piloted in few areas in Tanzania. Emphasis shall be to promote and scale up the available tools and support development of new innovative applications as well as address the challenges related to interoperability to improve sharing of information across sectors. Example of the currently available applications include the FAO Event Mobile Application (EMA-i) and *AfyaData* of the Southern Africa Centre for Infectious Diseases Surveillance (SACIDS).

The objective of this Animal Health Surveillance Strategy (AHSS) is to guide surveillance operations/procedures with the aim of controlling animal diseases (TADs &PZDs) and ultimately eradicate them in order to increase livestock production and productivity and improve human health. The above broad objective will be realised through improving the following surveillance enablers:

1. Legal and policy frameworks in support of animal health surveillance
2. Manpower for animal health surveillance
3. Surveillance activities and procedures
4. Institutional arrangement
5. Technology and Research
6. Advocacy and communication
7. OH partnership /integrated surveillance improved
8. Financial arrangements for surveillance
9. Monitoring and Evaluation

The developed implementation plan of the animal health surveillance strategy indicates activities, implementers and expected outputs. In addition, the plan shows budget estimates required to support implementation of this AHSS. The implementation period of the strategy is five years with an indicative budget amounting to **TZS 16,384,660,000.00**

CHAPTER

1

INTRODUCTION

1.1 Background

Livestock and wildlife are prime resource for the people and government of Tanzania. The livestock population includes 33.4 million heads of cattle, 21.29 million goats, 5.65 million sheep, 2.14 million pigs, 38.77 million free-range chickens, 44.51 million commercial chickens, and 657,389 donkeys, which support approximately 4.9 million households (Tanzania Livestock Master Plan, 2017; MLF Budget Speech, 2020). Large proportion of these animals are kept under low input-low output production system. Such production system is facing huge vectors and diseases challenges. Furthermore, detection and reporting of diseases is faced with weak surveillance and laboratory diagnostic support. In fact, there are inadequate livestock extension officers and limited number of veterinary diagnostic laboratories. In addition, wildlife also plays a role in the disease occurrence, Tanzania have about four million wild animals spread in 16 national parks covering 57,365 square kilometer interfacing livestock. In addition, there are 38 Wildlife Management Area (WMA) with a total land size of 29,518.4 square kilometers, 28 game reserves with a total land size of 114,782.47 square kilometers, one conservation area with a total land size of 8,292 square kilometers, 44 game controlled areas with a total land size is 58,565 square kilometers. The four million wild animals include zebras, elephants, wildebeests, buffaloes, hippos, giraffes, antelopes, dik-dik, gazelles, elands and kudus to name few (Wildlife subsector statistical bulletin second edition 2013).

1.2 Rationale for Animal Health (AH) Surveillance Strategy

According to OIE, surveillance is aimed at demonstrating the absence of infection or infestation, determining the presence or distribution of infection or infestation or detecting as early as possible exotic diseases or emerging diseases. Animal health surveillance is a tool to monitor disease trends, to facilitate the control of infection or infestation, to provide data for use in risk analysis, for animal or public health purposes, to substantiate the rationale for sanitary measures and for providing assurances to trading partners.

Surveillance is hence vital for understanding of the health status of animal and/or human in any country. Efficient and effective Surveillance system requires involvement of wide range of stakeholders joining efforts in contributing and supporting the key pillars of surveillance, which are epidemiology and laboratory systems. Building and enhancing animal health surveillance capacity is an international requirement expressed by the

African Union Inter-bureau for Animal Resources (AU-IBAR), East Africa Community (EAC), Southern Africa Development Community (SADC) as well as the Food and Agriculture Organization of the United Nations (FAO), World Animal Health Organization (OIE) and World Health Organization (WHO). Animal health surveillance is a key indicator under OIE Performance of Veterinary Services (PVS) pathway critical competencies as well as International Health Regulation (IHR, 2005). In Tanzania, animal health surveillance has been evaluated using available standard tools; of particular importance being the OIE PVS undertaken in 2008 followed by Gap analysis in 2009 and a follow up PVS mission in 2016 and Surveillance Evaluation Tool (SET) in 2017. In addition, in 2016 the surveillance system was evaluated based on Joint External Evaluation (JEE) tool.

Major gaps identified in all the evaluations included high dependence on paper-based reporting resulting in under-reporting of up to 90%, in-completeness and delayed reporting to the central unit for informed decision making and data management challenges. Further, noted were inadequate institutionalization and formalization of the operations within the surveillance system (eg laboratories were not interlinked to the epidemio-surveillance and thus resulting into inadequate sharing information or testing results), inadequate workforce capacities on basic epidemiology including developing tools to support outbreak investigations and antimicrobial resistance (AMR) surveillance not practiced (Figure 1&2).

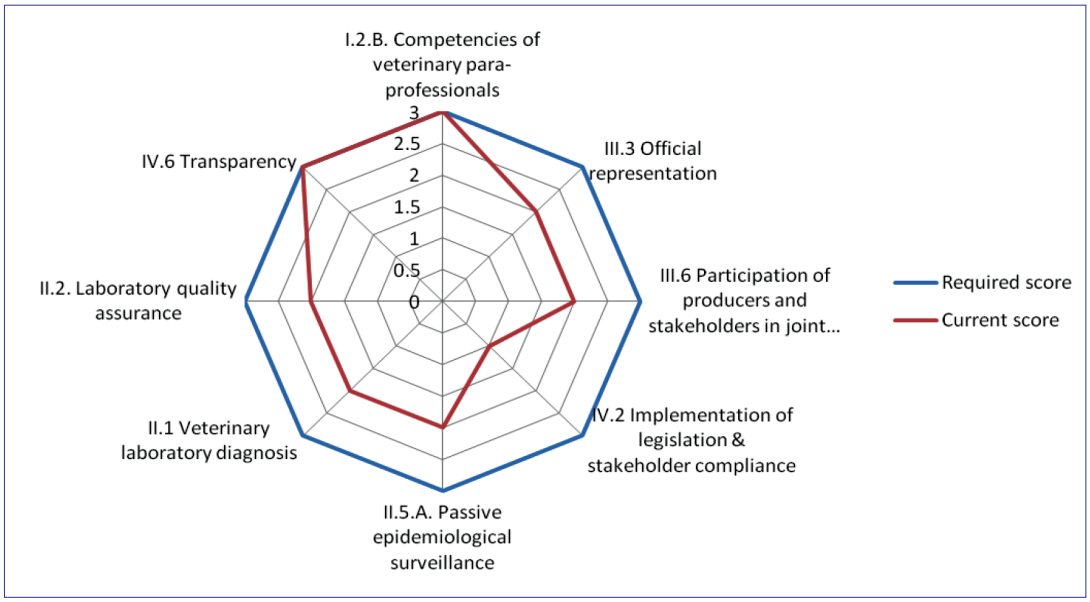


Figure 1: OIE performance of veterinary services (PVS) on legislation and follow up mission conducted in 2016.

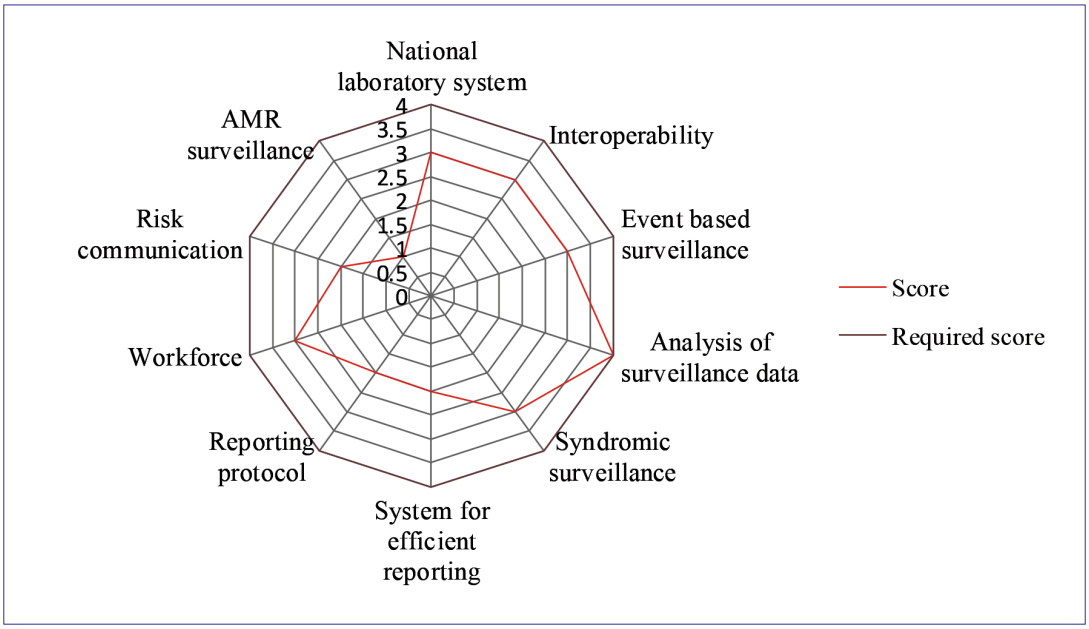


Figure 2: JEE assessment on capacity of surveillance in Tanzania

In addition, evaluation of the surveillance systems identified gaps in relation to cross-sectoral collaboration in addressing risks from zoonoses and other public health threats at the human-animal-ecosystem interface.

The Tanzania Livestock Policy of 2006 emphasizes on surveillance and reporting of transboundary animal diseases (TADs). The earmarked diseases include but not limited to African Swine Fever (ASF), Contagious Bovine Pleuropneumonia (CBPP), Contagious Caprine Pleuropneumonia (CCPP), Foot and Mouth Disease (FMD), Highly Pathogenic Avian Influenza (HPAI), Lumpy Skin Disease (LSD), Newcastle Disease (ND), Peste des Petits Ruminants (PPR), and rabies. Furthermore, in March 2017 the country Prioritized Zoonotic Diseases (PZDs namely rabies, anthrax, zoonotic influenza, Rift Valley Fever (RVF), including other viral haemorrhagic fever (VHF) (ebola and marbug), Human African Trypanosomiasis (HAT), and brucellosis for which capacity for detection, prevention and response will be strengthened.

Costs of surveillance are high, and involve considerable government resources, as well as contributions from the private sector including livestock industry. Without strong political support, surveillance operations may be under-funded, particularly when the output (i.e. picking up the diseases) is very low in relation to the inputs needed. The Animal Disease Act No 17 of 2003 part 2 section 3(2) (f) creates provision to establish epidemiological surveillance and laboratory system in order to manage animal diseases effectively and efficiently. Furthermore, the legislation creates a provision to establishment of an advisory committee responsible for advising the Director of Veterinary Services (DVS) on all matters pertaining to each regulation including animal surveillance. The Veterinary Act No 16 of 2003, Livestock Identification, Registration and Traceability Act No 12 of 2010 provides for some of the instruments supporting animal health surveillance in Tanzania. However, enforcement

of these legal instruments has been inadequate and poorly coordinated due to a number of factors including lack of clear institutional operational framework (SET evaluation report 2017).

Development of this AHSS addresses gaps identified by various evaluation missions to enhance cross sector/ multi-stakeholder collaboration in line with legal and policy frameworks, existing surveillance guidelines and Standard Operating Procedures (SOPs) relevant to animal health surveillance. The strategy provides guidance in improving systemic data collection, collation, analysis, interpretation, timely sharing with stakeholders of animal health and welfare emphasizing on trade sensitive TADs, prioritized zoonotic diseases (PZDs) and diseases with detrimental consequences to farmer's wellbeing and the public health. The strategy also provides guidance in support for antimicrobial resistance (AMR) and Antimicrobial use (AMU) surveillance to inform the veterinary and public health.

Furthermore, the outputs of the surveillance programme facilitate setting of priorities and guiding effective animal diseases prevention and control strategies. It also helps to monitor the progress and success of intervention programmes, and in the animal health field, to demonstrate the infection- and hazard-free status of animals and animal- derived products.

1.3 Purpose

To guide surveillance operations and procedures with the aim of controlling animal diseases (TADs & PZDs) and ultimately eradicate them in order to increase livestock production and productivity and improve human health in the country.

1.4 Intended users

The intended users of this strategy include public animal and human health surveillance officers from key line Ministries (Livestock, Human and Wildlife). Animal health professionals and para-professionals from public and private sectors including NGOs will greatly benefit on using the strategy. Higher Learning Institutions of will find the strategy useful for teaching and guiding students on how surveillance is structured, implemented and response to animal and other public health disease events.

1.5 Scope

This strategy describes the framework for conducting animal health surveillance in Tanzania. It provides for the required infrastructure as well as human and financial resources. The strategy fits in the existing local, national and regional strategic frameworks supporting livestock development.

CHAPTER

2

SITUATION ANALYSIS

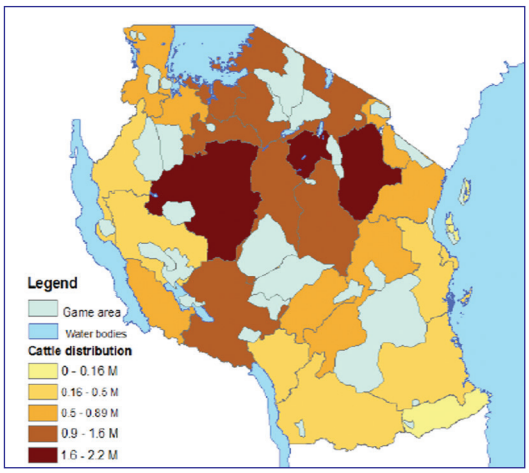
2.1 Livestock Production Systems

Livestock production system in Tanzania is comprised of a large traditional sector and a small but growing commercial sector. There are four types of livestock production systems commonly distinguished as pastoral, agro-pastoral, commercial ranching, and dairying (Small-scale, medium, and large-scale dairy). The diversity of livestock production system has a bearing effect on the control of TADs in the country.

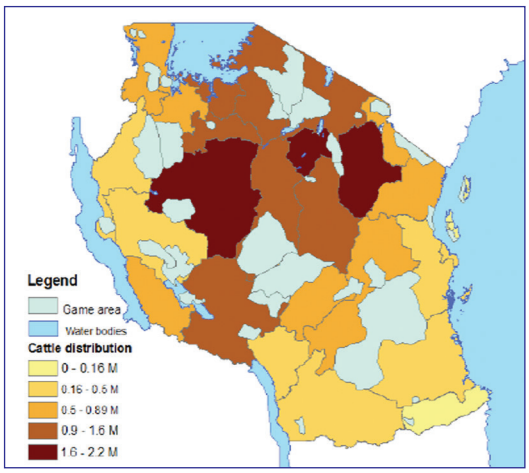
There are estimated 4.9 million farming households, 58% of which own poultry, 19% own small stock and 17% own cattle. About 80% of the livestock farmers (agro-pastoralists) are also crop farmers and the rest (20%) are pastoralists (NBS 2012).

2.1.1 Livestock Distribution in Tanzania

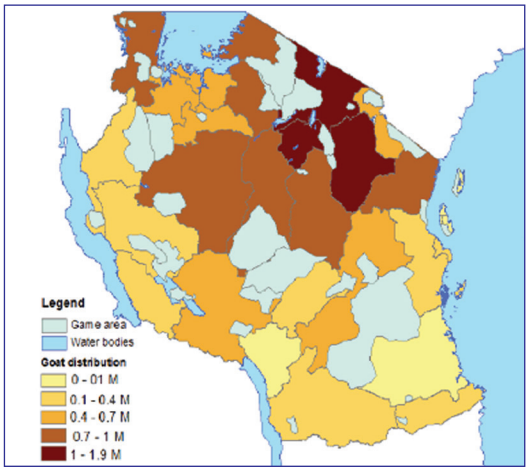
The distribution of livestock in different regions of Tanzania is uneven with 74% of all indigenous cattle kept in seven regions namely, Arusha, Singida, Tabora, Shinyanga, Simiyu, Mwanza and Mara. In the contrary, 96% of improved dairy cattle are kept in six regions namely; Arusha, Kilimanjaro, Tanga, Iringa, Mbeya and Kagera of which Kilimanjaro and Arusha regions alone account for 76% of the total improved dairy cattle (MLF, 2017). Highest number of sheep and goat population is found in the northern zone (Arusha, Kilimanjaro, Tanga and Manyara) whereas pig population is more on the southern highland zone (Iringa, Njombe, Mbeya, Songwe, Rukwa and Ruvuma) followed by Arusha, Dar es Salaam, Dodoma, Kagera, and Rukwa regions. The distribution of livestock in Tanzania is shown in Figure 3.



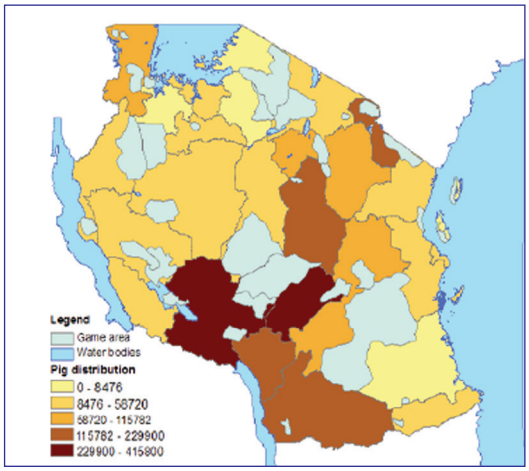
a. Cattle distribution



b. Sheep distribution



c. Goats distribution



d. Pigs distribution

Figure 3: Maps showing distribution of cattle (a), sheep (b), goats (c), and pigs (d) in Tanzania

2.2 Animal Health Surveillance

Disease surveillance involves the ongoing systematic collection, analysis, interpretation and timely communication of health-related data for immediate response to minimize the impact of associated morbidity, mortality, economic losses or possibility of the infections be transmitted to humans. Animal Health surveillance evaluations conducted between 2008 – 2016 indicated main strengths of the system included sound analytical aspects of the laboratories (protocol in place, qualified workforce, laboratory information management system) and transparency. Currently the national workforce comprises of over 900 veterinarians, 3,000 paraprofessional practicing in over 1,249 registered veterinary facilities in both public and private sectors (VCT, 2019).

However, the animal health surveillance system faces a range of limitations that include:

- ✓ Inadequate human and material resources such as staff, means of transport (vehicles & motorbikes) and software. The roles and responsibilities of staff are not clearly defined,
- ✓ Inadequate financial resources, which severely affects the capacity to conduct surveillance activities,
- ✓ Lack of representativeness of the surveillance system due to both the lack of exhaustiveness (incompleteness) and inadequate coverage of the target population, the lack of homogeneity in reporting, the high rate of under-reporting (more than 90%),
- ✓ Lack of institutionalized organization and operation of the surveillance system clearly identifying partners involved in the surveillance system and formalizing roles and responsibilities between all partners,
- ✓ Surveillance objectives and procedures for priority Transboundary Animal Diseases (TADs) and Priority Zoonotic Diseases (PZDs) are not formalized and standardized,
- ✓ There is no antimicrobial resistance (AMR) surveillance system in place,
- ✓ Laboratories not integrated enough to conduct joint surveillance,
- ✓ Laboratories not accredited and rarely perform inter-laboratory comparison of competences on sample analyses,
- ✓ There is inadequate inter-sectoral collaboration whereby surveillance of vectors such as tsetse flies is not included in the equation,
- ✓ Private sector laboratories and clinics not fully included in the surveillance system.
- ✓ Surveillance stakeholders identified but their expectations and responsibilities not clearly defined and these include LGAs, farmers, buyers and producers.

2.2.1 Situation analysis of animal diseases in Tanzania

Three main categories of animal diseases in Tanzania include:

i) Priority Transboundary Animal Diseases (TADs)

a. Constitute the single most important constraint to the livestock industry in Tanzania and include African Swine Fever (ASF), Blue Tongue (BT), Contagious Bovine Pleuropneumonia (CBPP), Contagious Caprine Pleuropneumonia (CCPP), Foot and Mouth Disease (FMD), Lumpy Skin Disease (LSD), Newcastle Disease (ND), Peste des Petits Ruminants (PPR).

b. A number of factors influence the occurrence and spread of TADs including host susceptibility, host range, presence of vectors, pathogen type and dynamics, environment, climate, seasonality of animal nutrition, unregulated movement of livestock, veterinary service infrastructures, policies and resources used in the surveillance of TADs.

c. Most of the diseases under this category are endemic and surveillance objective are mainly to understand disease distribution, introduction of new strains and vaccination efficiency for those that control programme is being implemented. Rinderpest falls under this category but it has been eradicated, the focus is to maintain the freedom status.

ii) Priority zoonotic diseases (PZDs)

a. include rabies, anthrax, zoonotic avian influenza, Rift Valley Rever (RVF), Human African Trypanosomiasis (HAT), and brucellosis.

b. The surveillance objective are mainly to understand disease distribution, introduction of new strains and vaccination efficiency for those that control programme is being implemented. Under this category the zoonotic avian influenza is an emerging or exotic disease, its surveillance is aimed at identifying the risk of disease introduction in the country.

iii) Vector-borne diseases

a. including East Coast Fever (ECF), anaplasmosis, babesiosis, heartwater and trypanosomiasis

b. Surveillance objectives are mainly to understand the distribution in space and time, and assess the effectiveness and efficiency of their control programmes.

Communication of disease information has traditionally been done within the Ministries with little sharing between Ministries. With the growing need of addressing healthy issues under One Health concept there is a need to improve communication between and inter ministerial for the diseases transmitted between human and animals (zoonoses). It is worth noting some improvement at the national level where the One Health Coordination Desk has been established under the Prime Minister's Office (PMO) to coordinate activities under the three core Ministries namely: Ministry of Livestock and Fisheries (MLF), Ministry of Natural Resources and Tourism (MNRT) and Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC).

2.3 Policy Framework

There are adequate number of policies that govern surveillance of animal diseases in the country. Effective application of policies and enforcement of respective laws will significantly reduce animal diseases including TADs in Tanzania.

2.3.1 National Livestock Policy

The National Livestock Policy (NLP) of 2006 aims at stimulating development in livestock industry in order to exploit the available resource with due concern for the conservation of environment. The policy emphasizes the importance of competitive markets; commercialized livestock industry, value addition of livestock products and sustainable livestock development.

The animal health surveillance strategy is in line with other national policies and strategies as summarized hereunder:

2.3.2 Tanzania Development Vision 2025 (TDV-2025)

Tanzania Development Vision (TDV) provides guidance on national long-term strategic goals for social and economic development and highlights, the change in approach and mindset needed to get there by 2025. The TDV envisages raising the general standards of living of Tanzanians to the level of a typical medium income developing country by 2025 in terms of human development. It identifies three priority goals: ensuring basic food security, improving income levels, and increasing export earnings. In this regard, zero reports of TADs will ultimately result into increased export of animals and animal products.

2.3.3 The National Strategy for Income Growth and Poverty Reduction (NSGRP-MKUKUTA) of 2000

NSGRP -MKUKUTA gives high priority to agriculture/livestock and rural development and targets poverty reduction as the central goal of national development.

2.3.4 The Rural Development Strategy of 2001

Rural development strategy (RDS) focuses on stimulating economic growth and reducing poverty in rural areas.

2.3.5 The Agricultural Sector Development Programme II (ASDP II) of 2011

ASDP II aims to create an enabling and conducive environment for improving profitability of the sector as the basis for improved farm incomes and rural poverty reduction in the medium term and long term.

2.3.6 The Animal Health Strategic Plan (AHSP) of 1998

Animal health strategic plan (AHSP) defined the public sector, private sector, and shared public/private roles in the delivery of animal health services in the country.

2.3.7 The Tsetse fly and Trypanosomosis Control Strategy of 2012

Tsetse and Trypanosomosis Control Strategy advocates integrated management of Tsetse and Trypanosomiasis in relation to use of pesticides through targets and traps.

2.3.8 Tanzania Livestock Master Plan (2017/2018 – 2021/2022)

The emerging micro and macroeconomic policy changes, new challenges and opportunities necessitated to have a livestock roadmap, the Tanzania Livestock Master Plan (TLMP). The plan aims to address all challenges facing the livestock industry and hence achieve the Tanzania Development Vision (TDV) 2025. The TLMP sets out livestock-sector investment interventions on improved genetics, feed and water resources, animal health services, huge investment on industry and factory, promotes private sector investment and business environment.

2.4 Legal framework

There is an established legal framework within the country for surveillance of animal diseases covering key issues related to land ownership (including setting aside land for grazing), regulated movement and transport of animals. However, weak enforcement of laws due to fragile institutional arrangements has caused significant shortfalls. The laws/regulations that are in place for the time being that can be used in the TADs surveillance include:

a. Animal Diseases Act, No.17 of 2003
b. The Veterinary Act No. 16 of 2003
c. The Food, Drug and Cosmetics Act No.1 of 2003
d. Livestock Registration, Identification and Traceability Act No 12 of 2010
e. Meat Industry Act No. 10 of 2006
f. Minister circular of 2017
g. The Dairy Industry Act of 2004
h. Tanzania Wildlife Research Institute (TAWIRI) Act number 4 of 1980
i. Animal Diseases Regulations of 2007
j. Wildlife Conservation Act No. 5 of 2009
k. The Grazing Land and Animal Feed Resources Act No. 13 of 2010

2.5 Animal health infrastructures and staffing

The following surveillance infrastructures are available from grassroot to national levels although neither adequate in amounts nor in good state of repair. These infrastructure includes 89 district veterinary clinics, 2,533 cattle dips tanks (Figure 4), 521 livestock markets (487 primary, 22 secondary and 12 border), 8,585 slaughter facilities (17 abattoir and 8568 slaughterhouses and slabs), 1,302 livestock water facilities and 773 animal crushes distributed all over the country. Inadequacy of staff and working pieces of equipment in zoosanitary check points is shown (Figure 5). There are 45 zoosanotary points with 49 staff out of the required 136 and 14 motorcycles out of 65 required.

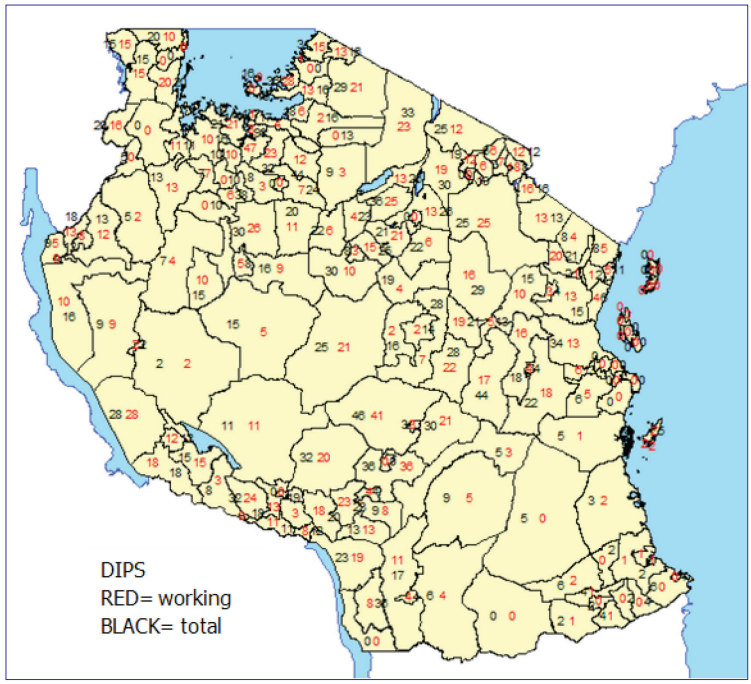


Figure 4: Distribution of cattle dips (operational and non-operational)

Figure 5: Distribution of veterinary clinics and zoosanitary border posts

2.6 Infrastructure and pieces of equipment requirements at different surveillance level

After receiving a tip about an event, a technical staff have to visit the farm and observe the condition and report it as soon as possible. At the same time it is important to collect sample for laboratory test. The screening tests is always done on site whereas the advanced tests are done at the zonal TVLA centres or any private veterinary laboratory in the vicinity. In this regard, different types of equipment and facilities are required at different level as shown on Table 1.

Table 1: Data capturing equipment and facilities required at various levels

No	Level	Equipment	Infrastructure
1.	Farm/ community/ village	• Transport facility eg Motor cycle • Cold chain equipment such cool boxes and refrigerators • Sampling gears • Data capture tools eg Smartphone	• Temporary/ permanent crushes are built by livestock keepers whenever samples are collected and vaccinations conducted • Livestock Development centres • Slaughter slabs • Dip tanks • Watering points
2.	District level	• Transport facility eg vehicles, Motor cycles • Cold chain equipment such cool boxes and refrigerators • Sampling gears • Data capture tools eg Smartphone • Data management tools eg Computers	• Diagnostic facility • Veterinary centers/clinics/ facilities • Slaughter facilities (abattoirs & slaughterhouses) • Milk collection centers • Checkpoints • Livestock markets/hatcheries
3.	Zonal level	• Transport facility eg vehicles, Motor cycles • Cold chain equipment such cool boxes and refrigerators • Surveillance and diagnostic eqipments including sampling gears • Biosafety cabinets • Data capture tools eg Smartphone • Data management tools eg Computers	• Zoosanitary checkpoints • Quarantine station/holding grounds • Livestock markets/hatcheries
4	National level	• Transport facility eg vehicles, Motor cycles • Cold chain equipment such cool boxes, Liquid Nitrogen tanks and refrigerators • Surveillance and diagnostic facilities including sampling gears • Biosafety cabinets • Data capture tools eg Smartphone • Data management tools eg Computers • Motor vehicles, motor cycles • Generators	• Referral diagnostic facilities (eg CVL, CIDB, SUA, KCRI, NM-AIST) • Slaughter facilities (abattoirs & slaughterhouses) • Milk collection centers • Livestock markets/hatcheries

2.7 Agencies responsible for disease surveillance

2.7.1 Local Agencies

a. Livestock farmer

i. To recognize signs of illness of their animals and report to service providers and livestock extension staff

ii. To keep records of animal health, production parameters/events and report any unusual events eg. occurrence of unusual upsurge of diseases and vectors

iii. To follow guidelines provided by extension staff/service provider on appropriate livestock keeping

b. Private Sector

i. Reporting disease event and unusual event to inspector

ii. Providing data on all activities related to disease surveillance

iii. Strengthen public private partnership on animal health and production

c. Local Government Authorities

Responsibility of LGAs in the surveillance of animal diseases include:

i. Recruiting animal health service providers;

ii. Reporting disease event, unusual event to inspector, LGA, regional and national level;

iii. To enact by-laws on the disease surveillance at district level;

iv. To provide technical support in the formulation of disease control projects;

v. To collect animal health surveillance data and report to MLF;

vi. To mobilize funds eg. Livestock Development Fund (LDF) and strengthen livestock sector activities including AH surveillance.

2.7.2 National level

a. Central Government

The Ministry of Livestock and Fisheries (MLF) is entrusted with the following main functions:

i. To coordinate, enhance and strengthen matters related to livestock development;

ii. To demonstrate efforts towards poverty reduction, provide policy directions and technical guidance to development of livestock sector and sector stakeholders;

iii. To provide technical backstopping to zonal, regional and LGAs;

iv. To support collection, collation, processing, storing and dissemination of animal health and related information.

With its mandate of policy review, formulation, implementation and monitoring, the Ministry of Livestock and Fisheries organize, inform, empower, and enable farmers and private sector as a whole to take advantage of the unfolding opportunities in the economy to enhance their productivity, income generation and improved livelihoods. To build capacity of LGAs and the private sector in order to provide quality services to livestock producers, processors and traders.

The Directorate of Veterinary Services (DVS) is responsible for reporting animal disease events, safeguarding animal health and promoting safe livestock trade. The Division has the following four sections:

i. Transboundary Animal Diseases;
ii. Vector and Parasitic Diseases Control;
iii. Veterinary Public Health, Livestock Products and Inputs;
iv. Zoosanitary, Animal Welfare and Registration;

The main aim of animal health surveillance is to detect and prevent introduction of animal diseases. The MLF is working in collaboration with the following ministries:

i. President's Office - Regional Administration and Local Government (PO-RALG);
ii. Ministry of Agriculture (MA);
iii. Ministry of Industries, Trade and Marketing (MITM);
iv. Ministry of Health, Community Development, Gender, Elderly and Children (MHCDGEC);
v. Ministry of Natural Resources and Tourism (MNRT);
vi. Ministry of Home Affairs (MHA).

2.7.3 International level

Standards, agreements and guidelines of the World Organization for Animal Health (*Office Internationale des Epizooties*-OIE) guide the delivery of veterinary services. Director of Veterinary Services (DVS) is the OIE delegate and the epidemiology unit furnishes AH reports (immediate notification, updates, semi and annual). Livestock and livestock products trade is guided by World Trade Organization (WTO), Sanitary and Phytosanitary (SPS) and Codex Alimentarius Agreements. Veterinary services encompass delivery of animal health services, control and eradication of TADs, PZDs and vector and vector-borne diseases. In order to share information to international and regional organizations, the veterinary services division requires surveillance system that allow sharing and transformations of data from various sources to the region and beyond i.e. AU-IBAR, East Africa Community (EAC) and SADC.

2.7.4 Stakeholder's analysis

A number of stakeholders having interest and influence in surveillance of Animal Health in Tanzania will be engaged. Each stakeholder has a role to play in order to minimize the impact of disease outbreak, improve animal production and health, or promote production safe food of animal origin. Most stakeholders indicated rated showing interest and influence Figure 6. Stakeholders roles and impact is listed in annex 2.

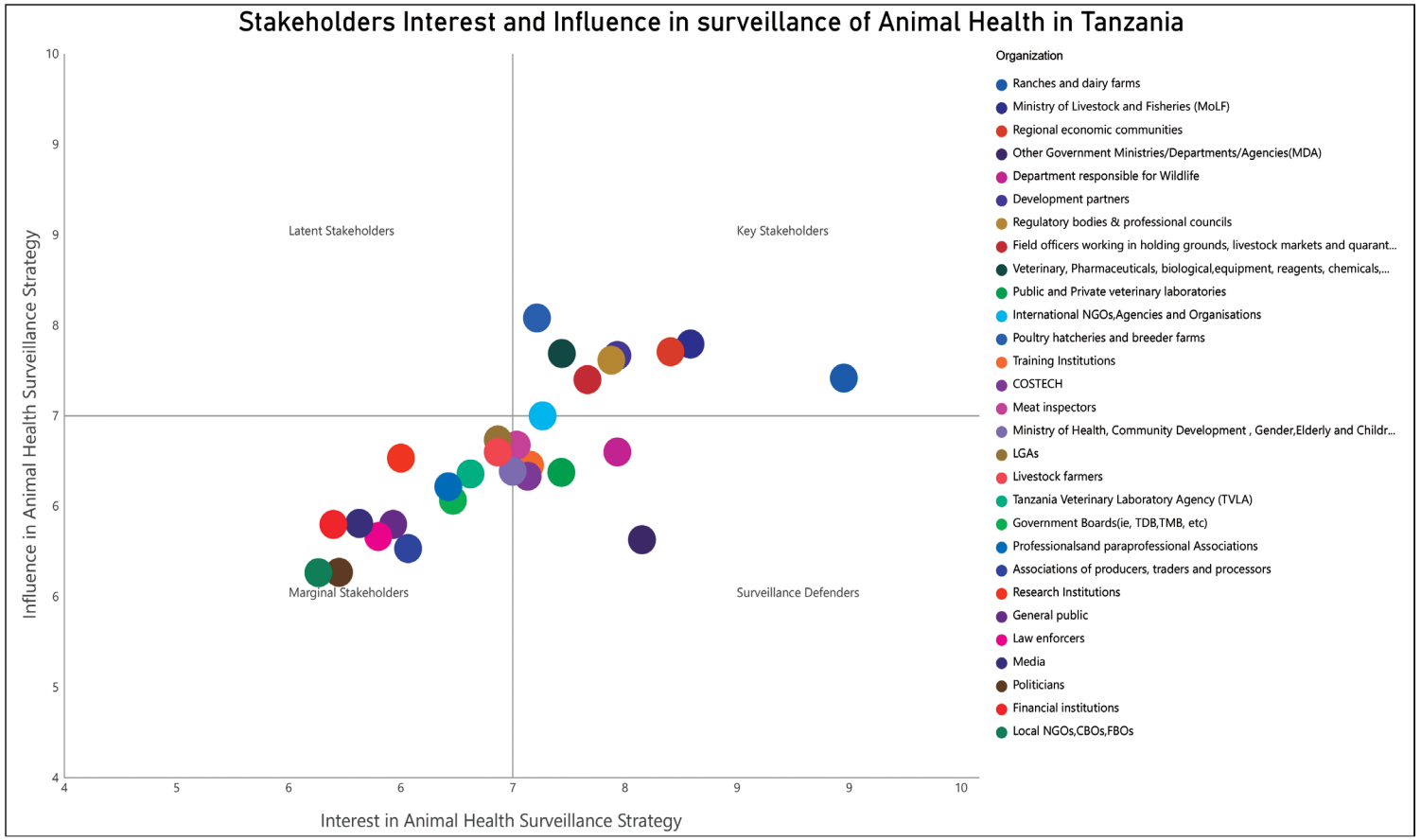


Figure 6: Analysis of Stakeholders influence and interest

2.8 Recent initiatives

The Cooperative Biological Engagement Program/ Defense Threat Reduction Agency (CBEP/DTRA) commissioned evaluation of animal and human surveillance system through disease detection, surveillance and response (DDSR), and the report (2013) strongly suggested the need for surveillance strategy in animal and human sectors.

Tanzania implemented the first phase of the Defense Threat Reduction Agency (DTRA) from 2012 to 2015 project titled "strengthening of epidemio-surveillance system" under which various activities aimed at improving the animal health surveillance were implemented. Among the activities implemented included: training of epidemiology and laboratory experts on biosafety and biosecurity, PE/PDS techniques, GIS-Data analysis and assessment of the existing surveillance system.

Recently under the DTRA project a number of SOPs have been developed on epidemio-surveillance of priority TADs including PPR, FMD, RVF, CBPP, and brucellosis. The SOPs give instructions/ guidance on how to conduct surveillance of a particular disease before outbreak, during, and after outbreak, and in case of RVF include how to conduct surveillance in the inter-epidemic periods.

To improve both qualities and completeness of animal disease reports, in 2017-2018 through USAID GHSA/EPT-2 Programme, FAO introduced Event Mobile Application (EMA-i) in 70 districts to enhance real time disease reporting, interconnectedness of surveillance staff, alertness of events occurring in the neighborhood and creation of useful epidemiological reports, which can be shared for prompt decision making. In addition, SACIDS supported *AfyaData* in six districts namely Kibaha, Kilosa, Malinyi, Morogoro, Ngorongoro and Ulanga (Figure 7).

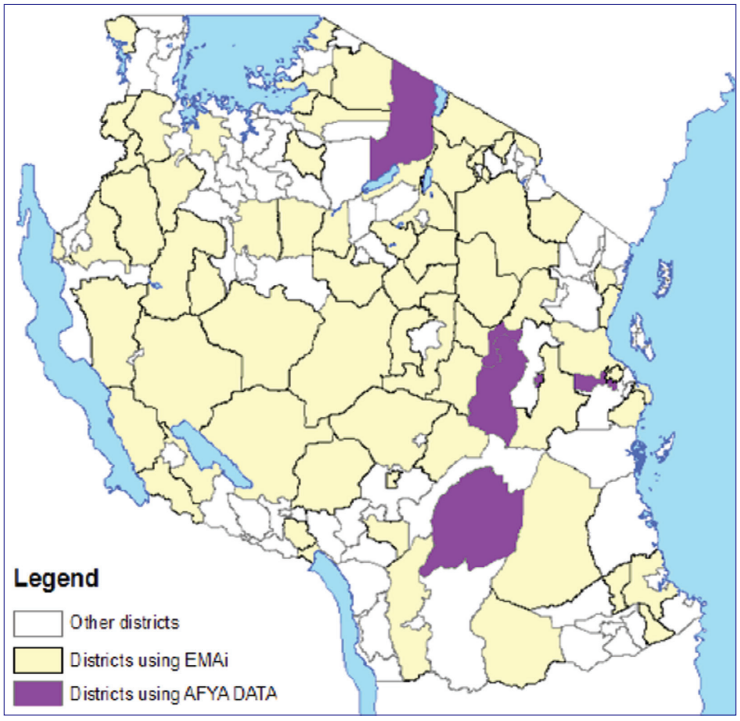


Figure 7: Map showing adoption of electronic reporting using s EMA-i and *AfyaData* applications

Between 2012 – 2018, FAO in collaboration with *Istituto Zooprofilattico Sperimentale dell' Abruzzo e del Molise* (IZSAM) with financial support from USAID, installed Laboratory Information Management System (LIMS) known as SILAB in all TVLA laboratories. SILAB has strengthened systems for detection by modernizing the approach of managing, tracking and centralising the generated diagnostic data in all laboratories. The system has allowed for faster turn-around times of samples, automation and strict quality control of data.

In addition, there has been efforts to improve AMR surveillance through development of the surveillance plan where guidance is provided in terms of pathogens and antimicrobials to be dealt with, personnel and laboratory capacity building to facilitate AST on going through various programmes including FAO – FF2 programme. Table 3 shows the currently available passive surveillance system in Tanzania.

Table 2: Current passive surveillance system: Issue, strength, weakness, opportunity and challenge (SWOC) analysis

ISSUE	STRENGTH	WEAKNESS	OPPORTUNITY	CHALLENGE
Legal and policy frameworks in support of animal health surveillance	Presence of policies and laws that support surveillance	• Inadequate regulations specific for surveillance • Inadequate enforcement of existing legislations • No AH surveillance advisory/technical committee in place	• Existence of international guidelines and standards developed by respective organs involved in animal health issues e.g. AU-IBAR, FAO, OIE, SADC, EAC • Multi - sectoral collaboration	• Mainstreaming law enforcement of D by D • Harmonization and implementation of policies and laws
Manpower for Animal health surveillance	• Presence of skilled manpower in epidemiologists and laboratory experts • job training for staff on specialized skills	• Inadequate epidemiologists and other equality important HR eg economist at headquarters • Position of surveillance officer in the local authority is not well defined • No regular specialized training to staff involved in surveillance.	• JEE, PVS and SET evaluations	• Retaining trained personnel • High rate of retirements

ISSUE	STRENGTH	WEAKNESS	OPPORTUNITY	CHALLENGE
Surveillance activities and procedures	• Presence of surveillance system • Presence of well-equipped laboratories Presence of guideline, SOPs and manuals for surveillance/ diagnostics of TADs and PZDs	• Inadequate diagnostic kits • Limited number of diagnostic tests • Lack of Laboratory Infrastructure Network • Surveillance objectives not institutionalized and harmonized at field levels • Standardized SOPs and data collection tools not adequately distributed at field levels	• Collaboration with local and international partners	• Limited financial resource • Regular auditing of surveillance activities
Institutional arrangement	• Collaboration between ministries, academia and research institutes in place • Inter-ministerial coordination through OHCD in place • Public Private partnership implementation policies	• Absence of technical and scientific committee to advise the DVS. • Weak linkage between public and private sectors • Inadequate joint planning between Epidemiology and laboratory • Inadequate number of laboratories/ Veterinary Centres • Unmapped laboratory capacities • Lack of SOPs/ framework to support multi-sectoral data sharing • Inadequate institutional support eg Operation Centre for Veterinary Services in support of coordinated response	• Presence of innovative technologies and • Presence of interested International Institutions to collaborate with	• Inadequate financial and human resources

ISSUE	STRENGTH	WEAKNESS	OPPORTUNITY	CHALLENGE
Technology and Research	• Presence of EMA-i, AfyaData and SILAB for epidemiological and laboratory surveillance • Presence of research institutions • Presence of ICT section in the Ministry	• Low coverage of EMA-i and *AfyaData* usage in the country • Lack of interoperability between EMA-i and *AfyaData,* and EMA-i with SILAB • No research agenda to inform strengthening of animal heath surveillance	• Collaboration with International organization, like FAO, SACIDS • Software developers from local universities	• Limited resources
Advocacy and communication	Presence of experienced personnel within the epidemiology and Laboratory system	• Lack of surveillance communication protocol • Inadequate induction courses for newly introduced personnel • Inadequate CPD for surveillance • Absence of training manual for surveillance • Inadequate surveillance awareness programme	• Presence of prepaid surveillance CPDs and short courses	• Limited resources
Financial arrangements for surveillance	Presence of budget line at DVS office	• Inadequate funding for surveillance, • Lack of prioritization of surveillance activities. • Absence of Emergence Operation Centre for Veterinary Services	• Presence of international organizations to support surveillance activities	• Limited resources
Monitoring and Evaluation	Availability of experts	• Lack of defined measurable indicators • Fragmented reporting systems	• Presence of other monitoring and evaluation protocol	• Inadequate financial resource

CHAPTER

3

THE STRATEGY

This Strategy is a plan of actions designed to harness the technical, institutional, human and financial resources to guide animal health surveillance in Tanzania. Key issues in the strategy includes advocacy, stakeholder's involvement, and prioritization of surveillance activities in view of optimization of available resources within the legal frameworks using one health approach where appropriate. In addition, the Strategy incorporates the use of information and communication technology (ICT), value chain actor's involvement, education and research to achieve efficient surveillance.

3.1 Vision

The Vision of this surveillance strategy is to have an efficient and effective animal health surveillance system.

3.2 Mission

The Mission of this surveillance strategy is to have an animal health surveillance system capable of addressing minimum OIE international standards requirements.

3.3 Goal

To have an improved and sustainable animal and public health.

3.4 Guiding principles

a) Complementarity on mandate and comparative advantage;

b) Transparency and mutual accountability for results, actions, and information sharing;

c) Partnerships, coordination and collaboration at national, regional, and international levels with regional timely information sharing and coordinated interventions;

d) Professionalism of animal health surveillance at all levels;

e) Dynamic and adaptive surveillance system in responses to emerging issues.

3.5 Strategic Objectives (SO) and Key Result Areas (KRA)

The aim of this strategy is to provide a framework for effective and efficient animal health surveillance in Tanzania.

SO1: Legal and policy frameworks in support of animal health surveillance

Implementation of the strategy is in line with a number of policies and legislations that govern surveillance of animal diseases in the country. Strengthening of enforcement of legislations will be key focus and thus the following activities will be implemented under this strategic objective

- **Strategic issue**: Strengthen legal framework on animal health surveillance
- **Key Results Area**: Animal health surveillance regulations and guidelines developed and disseminated by 2020
- **Activities**
  i. Develop regulations under the Animal Disease Act of 2003 incorporating One Health approach or any other related law to guide animal health surveillance;
  ii. Develop guidelines for mainstreaming surveillance from the Ministry to the LGAs;
  iii. Creating positions to support animal health surveillance at the national, regions and district levels in accordance with the developed regulations;
  iv. Conduct awareness among surveillance stakeholders and partners;
  v. Harmonization of policies and laws governing surveillance;

SO2: Manpower for Animal health surveillance strengthened

Adequate human resources are key to achieve efficient surveillance, in addition, the available human resource need to have the required knowledge and tools to capture the events, analyze and transmit the reports to higher authority for informed and timely decision making.

- **Strategic issue**: Competent and sufficient workforce for animal health surveillance
- **Key Result Area**: Trained and competent personnel operating animal health surveillance system by 2023
- **Activities**
  i. Training staff on specialized needs that include but not limited to, economic analysis, Risk assessment (qualitative and quantitative) and analysis, Laboratory diagnostic techniques;
  ii. Identify gaps/needs and train staff to conduct targeted surveillance that meets national surveillance objectives for specified diseases;

iii. Formulate, train, and conduct regular simulations to the investigation and Rapid Response Team at zonal and district levels;

iv. Maintain succession plan for epidemiologists at national and zonal levels;

v. Define ToRs and recruit surveillance officer at Local Government Authority;

vi. Conduct regular retraining of staff on specialized skills;

vii. Identify stakeholders and partners of surveillance system, defining and formalizing their roles, responsibilities and expectations.

SO3: Surveillance activities and procedures coordinated and harmonized

Coordinated surveillance depends on harmonized protocols and procedures. Epidemiology and laboratory staff members need to work closely prior and during field investigation, sample collection, during sampling, preservation, transportation, storage, sample analysis and share the interpretation of test results. Technical staff who are involved in surveillance activities shall be well trained and equipped with uniform tools for reporting and those in the laboratories need to be competent and apply OIE approved tests for any confirmation of the suspected diseases.

→ **Strategic issue**: Improve field and laboratory surveillance capacity

→ **Key Result Area**: Harmonized and timely reporting of animal disease to stakeholders strengthened

→ **Activities**

i. Define and update surveillance objectives taking into account on the stages in the control or eradication of the specific disease/disease categories

ii. Procure sufficient field and laboratory consumables and mobility facilities;

iii. Develop Standardize kits and tests for priority animal diseases;

iv. Develop Standardize SOPs and protocols on data capture, validation, analysis and reporting;

v. Support process to ensure interoperability between laboratory, field and epidemiology databases;

vi. Develop and conduct induction course on surveillance guidelines for newly introduced actors in the surveillance system (laboratory and epidemiology);

vii. Develop and disseminate data collection tools including real time data collection and rumor register books;

viii. Develop and implement Continuous Professional Development (CPD) program as appropriate;

ix. Develop and conduct awareness programme to encourage reporting.

x. Routine field surveillance and Laboratory diagnosis by Zonal Veterinary Centres.

SO4: Institutional arrangement for surveillance system strengthened

Timely reporting hampered by the institutional separation that exists between human and animal health disciplines. In addition, technological barriers and issues of data sensitivity and trust has been identified as another barrier toward rapid transmission and sharing surveillance data amongst institutions and agencies. Often times, there is a weak link between private and public sectors and service providers. Therefore, improving communication and interconnections and interoperability of some software is encouraged among institutes.

- **Strategic issue**: Enhance communication, streamline and harmonize surveillance agenda to reflect stakeholders demand and expectations.
- **Key Result Areas**:
  1. Demand driven animal health surveillance in place by 2023
  2. Communication amongst institutions, reporting and diagnosis enhanced by 2023.
- **Activities**
  - i. Formulate technical and scientific committees to advise the DVS on surveillance matters;
  - ii. Undertake Joint planning of surveillance activities between epidemiology, laboratory and other stakeholders by defining objectives for surveillance and input required to achieve the objective;
  - iii. Strengthen linkage and communication between public and private sector in surveillance;
  - iv. Establish two additional surveillance (Zonal Veterinary Centres) posts (Bariadi and Kagera) and three laboratories (Bariadi, Sumbawanga and Kagera) to bring diagnostic services closer to the farm communities;
  - v. Identify at least three compulsory reporting posts in each Local Government Authority for disease reporting.
  - vi. Map laboratories based on internationally recommended tools and built capacities as appropriate;
  - vii. Identify (Nominate/ share ToRs) and train surveillance reporters (Focal Points) at various data sources, e.g. abattoir, livestock markets, veterinary facilities, villages;
  - viii. Foster linkages and data sharing between animal health surveillance system and other key stakeholders.

SO5: Technology and Research

Information communication technology (ICT) is there to facilitate and speed the communication. Research is encouraged for development of new, cheap, and user-friendly technologies for real time communication. The current EMA-i, *AfyaData* and SILAB are just examples for swift communication and information sharing. There is a need for research on how to this software talk to each other (interoperability) to hasten the surveillance system. It is imperative that private sector especially the telecommunication companies are engaged for sustainable deliverance efficient reporting.

- **Strategic issues**: Promote use of real-time technology in surveillance
- **Key Result Area**: Real time technology used by 50% of staff across the country by 2021
- **Activities**
  i. Rollout of electronic data capture, collection, collation, analysis and reporting tools (eg EMA-iand *AfyaData)* from communities/field level to National level;
  ii. Work out interoperability between existing information management tools eg SILAB-FA/Lab Information Management System (LIMS), EMA-i and *AfyaData;*
  iii. Develop and adopt novel and innovativetechnologies for surveillance.

SO6: Advocacy and communication

Livestock technical staff, policy makers and other stakeholders engaged in surveillance need to be abreast with technology and disease information. In this regard continuous training and retraining of staff on new technologies or on how to use conventional methods during surveillance is of paramount importance. Preparation and production of educational materials such as animal health manual will help a great deal. It is imperative that any scientific advancement on disease surveillance is communicated to all staff within a short period so that everybody is kept up-to-date.

- **Strategic issues**: Stakeholders engagement and participation in surveillance
- **Key Results Area**:
  1. CDP for surveillance actors in place by 2020
  2. Surveillance communication strategy in place by 2021
- **Activities**
  i. Development of surveillance communication protocol;
  ii. Establish and maintain advocacy on manning level of skill requirement in epidemiology and laboratories;
  iii. Develop training manual for surveillance;
  iv. Conduct surveillance awareness programme.

SO7: OH partnerships/integrated surveillance improved

In March 2017, Tanzania used a prioritization tool developed by Centre for Disease Control and prevention (CDC) to rank the zoonotic diseases in the country. The criteria that were used include easiness of the disease to spread, once the animal or human is infected there is no treatment, the disease has high case fatality rate, or the disease has no vaccine. The priority have the following decreasing order: rabies, anthrax, Rift Valley Fever (RVF) and including other viral haemorrhagic fevers such as Ebola and Marbug, zoonotic influenza including highly pathogenic avian influenza (HPAI), Human African Trypanosomiasis (HAT), and brucellosis. Two of the six priority

zoonotic diseases (PZDs) are TADs these include Rift Valley Fever (RVF) and Highly Pathogenic Avian Influenza (HPAI). In order to ensure health status of Tanzania, animal and human disease surveillance is pertinent and an important component.

- **Strategic Issue**: Strengthen collaborative surveillance among ministries involved in one health
- **Key Result Area**:
  1. Strong joint surveillance team on zoonotic diseases;
  2. Early response to outbreaks of zoonotic diseases.
- **Activities**

  Therefore, the following activities will be undertaken

  i. Undertake Joint Risk Assessment;

  ii. Conduct AMR surveillance in human, animal and environmental sectors;

  iii. Conduct PZDs joint surveillance;

  iv. Undertake joint outbreak investigations of diseases - will lead to early detection and hence reduce the impact of outbreaks. However, continuous search of diseases is an expensive exercise and hence requires significant human and financial resources;

  v. Develop and implement platforms that will enhance cross-sectoral information sharing based on the developed Guidelines for surveillance of PZDs for human and animal health in the United Republic of Tanzania, 2018;

  vi. Undertake OH RRT training to focus on disease recognition and timely reporting;

  vii. Set up sentinel animals/herds.

S08: Financial arrangements for surveillance

Surveillance is an expensive subject especially so if the results are not comparable to the amount of funds spent. However, being on alert all the time will lead to early detection and hence response to minimize the effect of disease compared to a situation where the disease was detected late. In this it is recommended that the DVS office establish a unit on emergency operations so that whenever there is a rumour or actual event a team is deployed to investigate the disease and take necessary action to prevent spread. Emergency operation unit need to solicit funds be on alert all the time.

- **Strategic issues**: Mobilization of funds for sustainable surveillance
- **Key Results Area**
  1. Different source of funds for surveillance identified, mapped and solicited by year 2020;
  2. Emergence operation unit established at DVS office by the year 2020.

- **Activities**
  i. Fund mobilization for surveillance activities;
  ii. Prioritization of surveillance activities;
  iii. Establishment and operating emergence operation unit at the DVS office.

S09: Monitoring and Evaluation

There are a number of standard tools developed to assess surveillance systems. Self-assessment on the performance of surveillance will be undertaken as part of internal monitoring and evaluation. However, internal monitoring and evaluation will be complemented with external monitoring and evaluation process that will bring a fair picture of the performance.

- **Strategic issues**: A system for monitoring and evaluation of surveillance activities developed and operationalized by 2020.
- **Key Result Area**: Sustainable M&E system established by 2020.
- **Activities**
  i. Conduct regular internal and external evaluations of the animal health surveillance using SET and/or other tools available.
  ii. Prepare/adopt checklist of measureable indicators;
  iii. Undertake revision of implementation strategy;
  iv. Conduct Monitoring and Evaluation activities.

3.6 Improving Communication

Each Ministry is responsible for collecting and communicating disease data through their respective channels, where the frontline staff and facilities are Wildlife Officers, Village extension Officer and Community health workers for the MNRT, MLF, and MoHCDGEC respectively (Figure 8). Data for zoonotic diseases will be shared between Ministries at various levels and the OHCD in the Prime Minister's Office.

All other diseases including zoonoses will be reported to international and regional bodies as indicated in Figure 9. For disease with high economic and public health impact, (disaster) the disease reporting channel is as indicated in Figure 10.

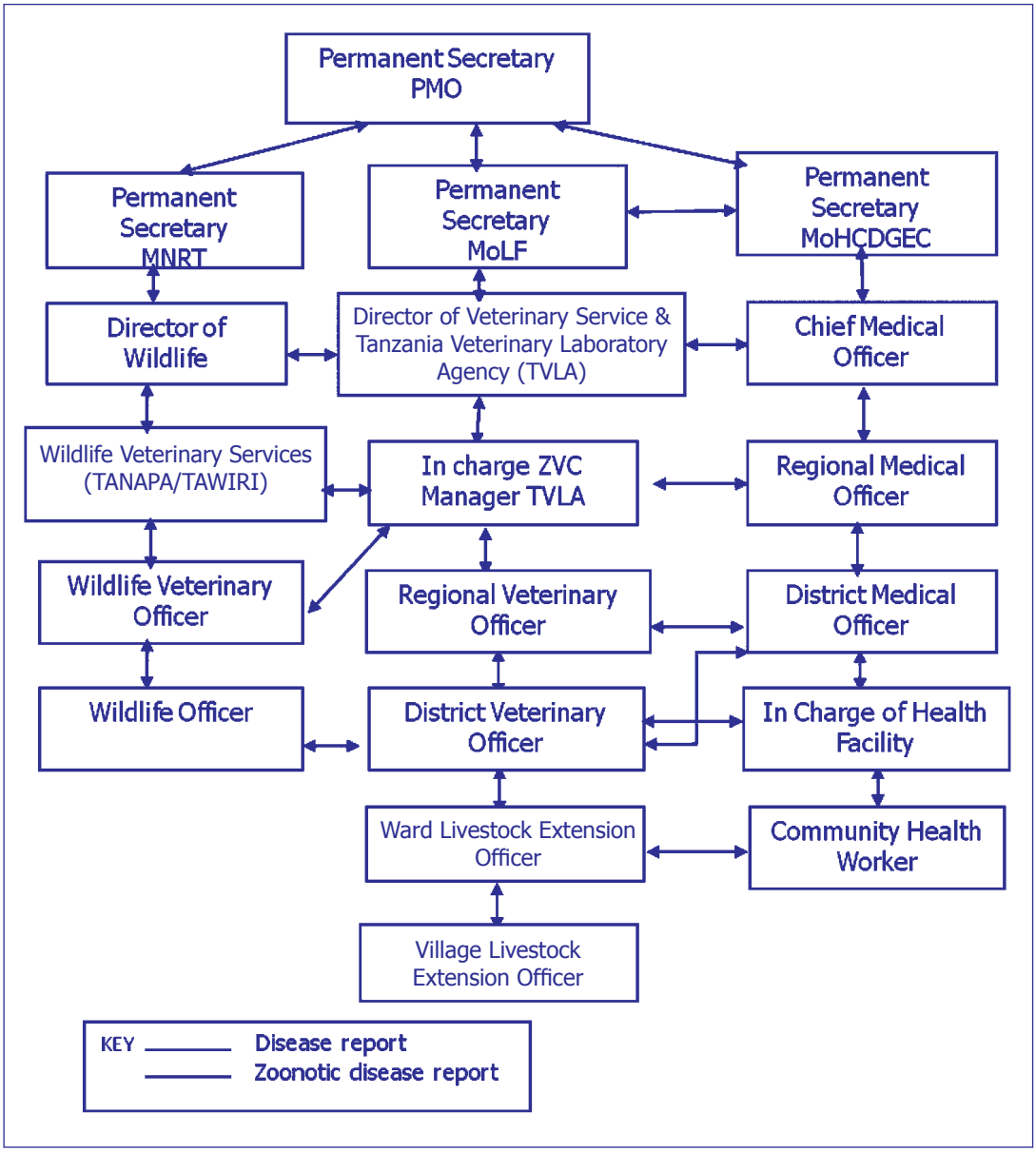


Figure 8: Disease reporting channel in Ministries

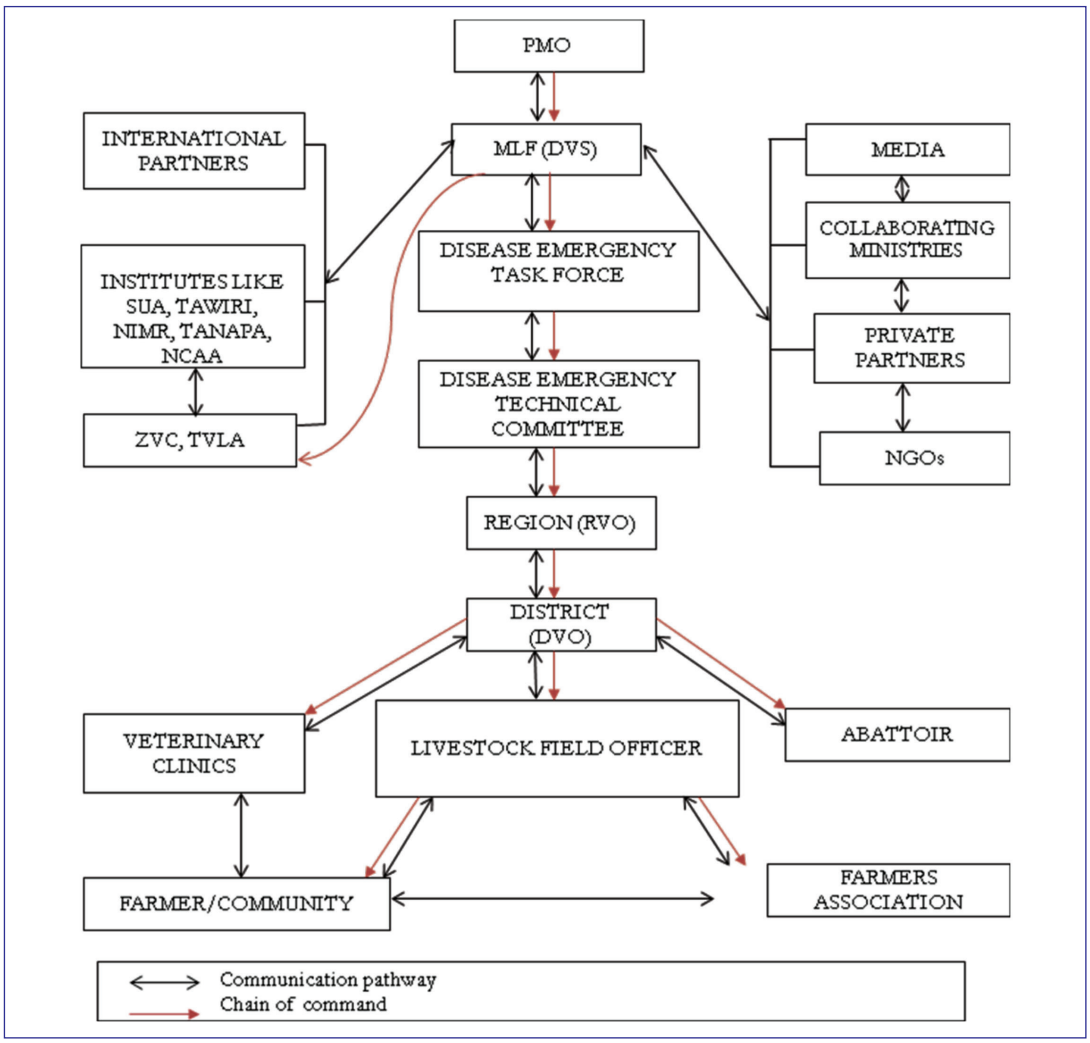


Figure 9: Data capturing and transmission for high impact diseases in case of disaster

Disease events shall be reported to the nearest Veterinary Office of the Local Government Authority (LGA) by a professional (eg Veterinary Officer, clinician), paraprofessional (eg Livestock field officer), farmer, trader, processor, local leader, tourist, media and the general public. Any suspected outbreak or rumor must in-turn be reported to the District Veterinary Officer (DVO) or Regional Veterinary Officer (RVO). The DVO shall visit the farm and investigate the case and report the matter to the Zonal Veterinary Centre (ZVC) and together with zonal TVLA will collect appropriate samples. ZVC will then report the disease event to the Director of Veterinary Services who has mandate to transmit information internally and internationally as deem appropriate. The ZVCs and Zonal TVLA centres in Tanzania are strategically placed so as to reach any suspected outbreak site within 24 hours. For wildlife disease information may be captured by a veterinarian or Game officer in the respective institutions such as TAWIRI, NCAA and TANAPA and information flow shall through the respective DVO.

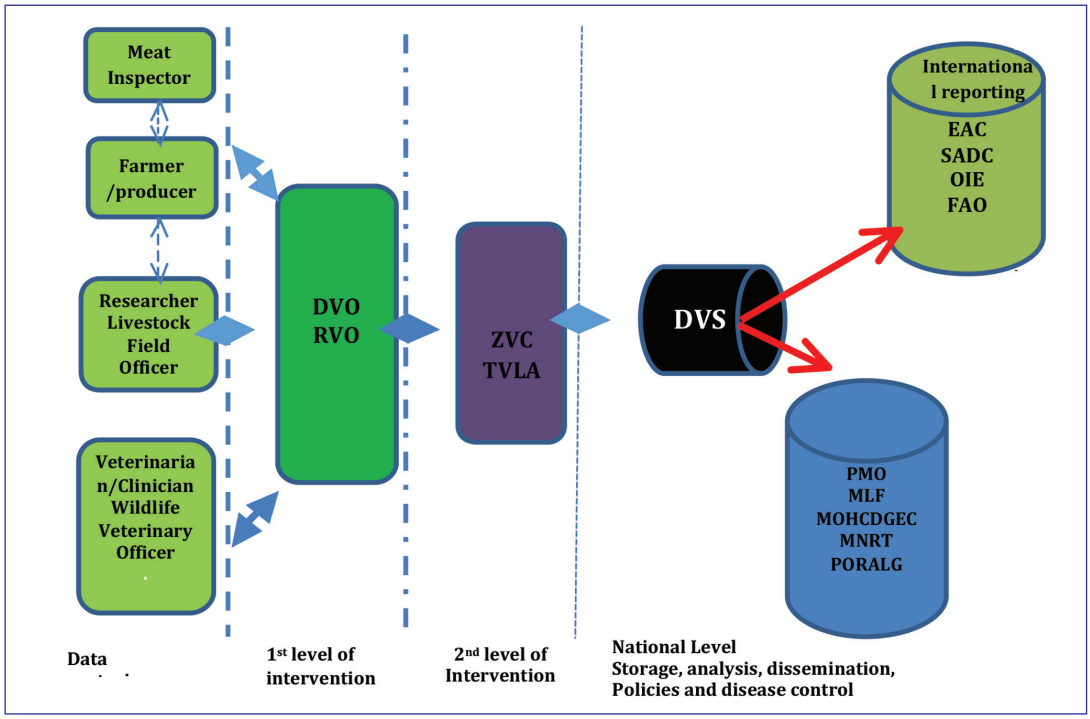


Figure 10: Levels of data capturing and transmission to international and regional bodies

3.7 Feedback

The data collected in the field using smartphone applications such as EMA-i and *AfyaData* are usually submitted on real-time, verified, validated, and the submitter of the information is given feedback. Feedback should be specific to ensure that the recipient understands the subject of the feedback based on the report submitted or the actual events and activities observed in the field. In addition, provision of feedback in a timely manner to the submitter will make the submitter comprehend whether the activities need to be sustained or corrected.

Feedback to the surveillance site where the data originates has the following advantages:

- Motivates those who sent the data and hence increase compliance for reporting;
- Increase quality of data from those who collect the data;
- Enhances the planned public health action;
- It will compliment planning for appropriate actions;
- Strengthening of the communication and spirit of team working.

Feedback can be supportive when it reinforces and acknowledges good performance or corrective when a change in behavior and improvement is required. Feedback need to be provided verbally or in writings also should be both vertical and horizontal targeting at different audiences as provided by different levels in the animal health reporting system / channels.

CHAPTER

4

MONITORING AND EVALUATION

The MLF will be responsible for developing a comprehensive and suitable framework for monitoring and evaluation (M&E) of surveillance strategy and disease control programs. Designed M&E framework will assist multi-stakeholders in assessing efficiency in tracking, detecting, and controlling the disease. In case the programme is making a difference make an appropriate allocation of resources to achieve the best overall result. Nevertheless, the overall lead in M&E will be the duty of the MLF with the support of LGAs.

Monitoring and evaluation of the performance of surveillance system should focus on measurable indicators, which shall demonstrate changes whether positive or negative or standstill situation.

4.1 Monitoring

The strategic plan will have an in built monitoring system, which will carry out activities on priority basis of animal health surveillance strategy. There shall be two types of monitoring system: one based on the lead institutions, MLF and LGAs, and the second one based on the other stakeholders that are beneficiaries themselves. Lead institutions will track output and outcome indicators during their normal reporting system. Quarterly plans and progress reports will provide source of information for monitoring and evaluation purposes. The lead institute will prepare the annual report. On other hand, all stakeholders as stipulated in Animal Disease Regulations of 2007 will report incidences of TADs (Table 4).

4.2 Evaluation

It is envisaged that there shall be two types of evaluation, namely internal and external evaluations aimed at improving the performance of communication of the information of animal diseases among stakeholders. Regular and or systematic surveys shall gather more information in this area (Table 4).

4.3 Financial arrangement

It is recommended that financing of the surveillance strategy is shared among stakeholders. The line ministry will be the key sponsor of this strategy in collaboration with international organizations but in some occasions engage relevant stakeholders. The budget for this surveillance strategy is as shown on Annex 1.

Table 3: Monitoring and Evaluation showing numerators, denominators, and national targets

S/N	TASK TO MEASURE	INDICATOR	NUMERATOR	DENOMINATOR	SOURCE INFORMATION	NATIONAL TARGET
1.	Number of reports submitted	Proportional of weekly, monthly and annual reports submitted and received by ZVC and Epi	Total number of weekly, monthly and annual report submitted and received by ZVC and Epi	Total number of weekly, monthly and annual report expected	Reports from Districts	80%
2.	Accurate report	Proportional of accurate weekly, monthly and annual reports from the districts received by ZVC and Epi	Total number of accurate Weekly, monthly and annual reports received by ZVC and Epi	Total number of all report weekly, monthly and annual reports expected by ZVC and Epi	Reports from the districts	80%
3.	Percentage of quality reports	Proportional of quality weekly, monthly and annual reports from the districts received by ZVC and Epi	Total number of quality weekly, monthly and annual reports from the districts received by ZVC and Epi	Total number of all report weekly monthly and annual quality reports expected by ZVC and Epi	Reports from the districts	80%
4.	Percentage of laboratory based diagnosis	Proportional of suspected outbreak of epidemic disease in which specimen collection and laboratory confirmation are complete	Proportional of suspected outbreak of epidemic disease in which specimen collection and laboratory confirmation procedures are measured	Total number of suspected disease outbreaks of epidemic prone diseases.	District records on suspected outbreaks Laboratory reports Intervention and supervision reports	80%

S/N	TASK TO MEASURE	INDICATOR	NUMERATOR	DENOMINATOR	SOURCE INFORMATION	NATIONAL TARGET
5	Timeliness of submission of reports	Proportional of Weekly, monthly and annual district report received by ZVC and Epi	Total number of weekly, monthly and annual reports received by ZVC and Epi	Total number of weekly, monthly and annual reports expected by ZVC and Epi	EMA-i reports and surveillance form from the districts Districts records on timeliness of weekly, Monthly and annual reports	80%
6	Completeness of reports	Proportional of complete weekly, monthly and annual reports received by ZVC and EPI	Total number of complete weekly, monthly and annual reports received by ZVC and Epi	Total number of expected complete weekly, monthly and annual reports received by ZVC and Epi	Reports from districts	80%
7	Percentage of real time tools used during reporting	Proportional of real time tools used during reporting	Total number of real time tools used during reporting	Total number of real time tools expected to be used during reporting	Reports from the district using real time tools	80%
8	Follow up rumours	Proportional of rumours follow ups	Total number of rumours reported	Total number of rumours expected	District book on suspected outbreak Report from laboratory Reports of investigation visits	80%

S/N	TASK TO MEASURE	INDICATOR	NUMERATOR	DENOMINATOR	SOURCE INFORMATION	NATIONAL TARGET
9	Possession of rumours register	Proportional of rumours register present	Total number of rumours register	Total number of rumours register expected	District book on suspected outbreak Report from laboratory Reports of investigation visit	80%
10	Timely preparedness and responses	Proportional of timely preparedness and responses	Total number of timely preparedness and responses	Total number of timely preparedness and responses expected	Reports on timely preparedness and response	80
11	Very Low Prevalence (to be determined per disease condition), zero reporting	Proportional of studies indicating disappearance of disease condition and zero reporting	Total number of studies indicating disappearance of disease condition and zero reporting	Total number of disappearance of disease condition and zero reporting expected	Weekly, monthly and annual reports from the districts	80%

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ANNEXES

Annex 1: Budget for the surveillance plan from 2020 –2024 (TZS in '000)

No	Strategic Objective	Activities	Number	Qty	Unit cost	Year 1	Year 2	Year 3	Year 4	Year 5
1.	Legal and policy frameworks in support of Animal health surveillance	1. Develop regulation guiding animal health surveillance under the Animal Disease act of 2003 incorporating one healthy approach	8 ZVC and 8HQ	16	2,400	384,000	0	0	0	0
		2. Creating surveillance officers post at the regions and district levels to support implementation of the laws and regulations	26 Regional,189 LGAs and 561 surveillance post	776	600	232,800	0	232,800	0	0
		3. Awareness creation among stakeholders	189 LGAs, 8 ZVCs, 11 TVLAs, 561 Surveillance posts and 26 regions	795	360	286,200	0	286,200	0	286,200
		4. Harmonization of policies and laws governing surveillance	189 LGAs, 8 ZVCs, 11 TVLAs and 26 regional	234	360	84,540	0	84,540	0	84,540

No	Strategic Objective	Activities	Number	Qty	Unit cost	Year 1	Year 2	Year 3	Year 4	Year 5
		5. Improve coordination with stakeholders (private sector and other Ministries, Departments and Agencies, MDA	4 Epidemiologist, 4 departments, 4 private sectors	12	360	4,320	4,320	4,320	4,320	4,320
2.	Manpower for Animal health surveillance	1. Training staff on specialized needs that include but not limited to, economic analysis, Risk assessment (qualitative and quantitative) and analysis, Laboratory diagnostic techniques.	8 Zonal ZVC, 11 TVLA and 4 HQ 8 Research and training institutions	31	360	11,160	0	11,160	0	11,160
		2. Identify gaps and train staff to conduct focused surveillance that meets national surveillance objectives for a specific disease.	4 epidemiologists 189 LGAs, 8 ZVCs, 11TVLAs and 26 RVOs	238	480	114,240	0	114,240	0	114,240

No	Strategic Objective	Activities	Number	Qty	Unit cost	Year 1	Year 2	Year 3	Year 4	Year 5
		3. Formulate, train, and conduct regular simulations to the investigation and Rapid Response Team at zonal and district levels	4 epidemiologists 189 LGAs, 8 ZVCs, 11TVLAs and 26 RVOs	238	480	114,240	0	114,240	0	114,240
		4. Maintain succession plan for epidemiologists at national and zonal levels	4 Epidemiologist HQ and 8 at ZVCs recruited	12	720	8,640	0	8,640	0	8,640
		5. Define and recruit surveillance officer at Local Government authority	189 Epidemiologist at LGAs	189	480	90,720	90,720	0	0	90,720
		6. Regular retraining of staff in specialized skills	4 Epidemiologist 8 Zonal ZVC, 11 TVLAs	23	2,520	57,960	0	57,960	0	57,960
		7. Identification of stakeholders in specific surveillance programme, defining their roles, responsibilities and expectations								

No	Strategic Objective	Activities	Number	Qty	Unit cost	Year 1	Year 2	Year 3	Year 4	Year 5
3.	Surveillance activities and procedure	1. Procurement of sufficient diagnostic kits and equipment	11 TVLA lab	11	8,000	88,000	0	88,000	0	88,000
		2. Standardization of kits and tests used in laboratories	11TVLAs	11	4,800	52,800	0	0	0	52,800
		3. Identification of surveillance objectives for disease tested in laboratories	4 Epidemiologist 8 Zonal ZVC, 11 TVLAs	23	2,520	57,960	0	57,960	0	57,960
		4. Standardization of SOPs and data recording tools	4 Epidemiologists 189 LGAs, 8 ZVCs, 11 TVLAs and 26 RVOs	238	480	114,240	0	0	114,240	0
		5. Strengthening of interoperability between laboratory, field and Ministry epidemiology databases	4 Epidemiologists 189 LGAs, 8 ZVCs, 11 TVLAs and 26 RVOs	238	200	47,600	0	0	47,600	0

No	Strategic Objective	Activities	Number	Qty	Unit cost	Year 1	Year 2	Year 3	Year 4	Year 5
		6. Develop induction course on surveillance guidelines for newly introduced actors in the surveillance system (laboratory and epidemiology)	4Epi, 8 ZVCs 189LGAs	201	480	96,480	0	0	96,480	0
		8. Conduct induction course for newly introduced staff in the surveillance system	4 Epidemiologist 8 Zonal ZVCs	12	600	7,200	0	7,200	0	7,200
		9. Develop and disseminate data collection tools including rumor register books	4 Epidemiologists 189 LGAs, 8 ZVCs, 11 TVLAs and 26 RVOs	238	600	142,800	0	0	142,800	0
		10. To develop Continuous Professional Development (CPD) program for actor	4 HQ Epi Units 8 Zonal ZVCs 2VCT 16 MDA and internet connection	30	6,000	180,000	0	180,000	0	180,000

No	Strategic Objective	Activities	Number	Qty	Unit cost	Year 1	Year 2	Year 3	Year 4	Year 5
		11. Train professionals and paraprofessional on CPDs	4 Epi 2 VCT 8 ZVC	14	480	6,720	6,720	6,720	6,720	6,720
		12. Define and update surveillance objectives taking into account on the stages in the control or eradication of the specific disease.	Epidemiology		0	0	0	0	0	0
		10. Develop and conduct awareness programme to encourage reporting	4 Epidemiologists 189 LGAs, 8 ZVCs, 11 TVLAs and 26 RVOs	238	480	114,240	0	0	114,240	0
		11. Field surveillance and Laboratory diagnosis	Surveillance teams ZVC, TVLA, Regional And Districts	8	200,000	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000
4	Institutional arrangement	1. Formulation of technical and scientific committee to advise the DVS on surveillance matters	2 Academia and research 2 livestock traders 2 OH 1 Public Health Epi 2 Epi Hq	9	480	4,320	4,320	4,320	4,320	4,320

No	Strategic Objective	Activities	Number	Qty	Unit cost	Year 1	Year 2	Year 3	Year 4	Year 5
		2. Joint planning of surveillance activities between epidemiology, laboratory and other stakeholders by defining objectives for surveillance and input required to achieve the objective	4 HQ Epi Units 11TVLAs, 8 ZVCs and 2 VCT	25	360	9,000	0	9,000	0	9,000
			4 HQ Epi Units 2 Academia 10 Clinics 9 LGAs	25	360	9,000	0	9,000	0	9,000
		4.Establishment of three Surveillance post and laboratories (Nyakabindi, Sumbawanga and Kagera) to bring diagnostic services closer to the farmers	ZVC and TVLAs	3	1,050,000,000	1,050,000	0	0	0	0
		5.Mapping of laboratories capacities and distribution across the country	TVLAs and Private lab	11	360	3,960	0	0	0	0

No	Strategic Objective	Activities	Number	Qty	Unit cost	Year 1	Year 2	Year 3	Year 4	Year 5
		6. Identify and train reporters at various data sources, e.g abattoir, livestock markets, clinics, villages.	189 Inspectors 8 ZVC 4 Epid	201	360	72,360	0	0	72,360	0
5	Identify and train reporters at various data sources, e.g abattoir, livestock markets, clinics, villages.	1. Rollout of EMAi data collection, collation, analysis and reporting tool to LGAs	11 TVLAs, 8 ZVCs, Epi unit and internet connection	23	600	13,800	0	13,800	0	13,800
			Purchase and distribute smartphones to DVOs and surveillance post	750	400	150,000	150,000	0	0	0
		2. Rollout of *AfyaData* as active surveillance data collection tool	4 epidemiologists, 8 ZVCs,	12	480	5,760	0	5,760	0	5,760
		3. Working on interoperability between SILAB, EMA-i and *AfyaData*	4 HQ Epi Units, 11TVLA, 8 ZVCs and 1 SACIDS	24	480	11,520	0	11,520	0	12,000
		4. Develop and adopt new technology for surveillance	Epi		5,000	5,000	0	0	5,000	0

No	Strategic Objective	Activities	Number	Qty	Unit cost	Year 1	Year 2	Year 3	Year 4	Year 5
		5. Create linkage and data sharing between animal health surveillance system and other stakeholders	4 Epi 11TVLA 8 ZVCs 189 LGAs	212	360	76,320	0	0	76,320	0
6	Advocacy and communication	1. Development of surveillance communication protocol	4 Epidemiologist 8 Zonal ZVC, 11 TVLAs	23	1,000	23,000	0	0	0	0
		2. Develop induction course on surveillance guideline for the newly introduced actors in the surveillance system	HQ Epi Units, private sector and other Ministries, Departments Agencies, (MDA) and Regional and international organizations	20	600	12,000	0	12,000	0	12,000
		3. Develop CPDs for actors in the surveillance system	3 RVCT, 4 DVS, 2 SUA, 2 LITA, Consultation	11	1,000	11,000	0	11,000	0	11,000

No	Strategic Objective	Activities	Number	Qty	Unit cost	Year 1	Year 2	Year 3	Year 4	Year 5
		4. Establish and maintain advocacy on manning level of skill requirement in epidemiology and laboratories	DVS DAHRM		0	0	0	0	0	0
		5. Develop training manual for surveillance	Epidemiology	12	360	4,320	0	0	0	0
		6. Conduct surveillance awareness programme	4 epidemiologists 189 LGAs, 8 ZVCs, 11 TVLAs and 26 RVOs	238	600	142,800	0	0	142,800	0
7.	Financial arrangements for surveillance	1. Fund mobilization for surveillance activities	HQ epi Unit		76,800	76,800	76,800	76,800	76,800	76,800
		2. Prioritization of surveillance activities .	HQ Epi Units, private sector and other Ministries, Departments Agencies, (MDA) and Regional and international organizations	49	600	29,400	0	0	0	0

No	Strategic Objective	Activities	Number	Qty	Unit cost	Year 1	Year 2	Year 3	Year 4	Year 5
		3. Establishment and operating of emergence operation section at the DVS office	DVS	4	10,000	40,000	40,000	40,000	40,000	40,000
8.	Monitoring and Evaluation	1. Preparaing a checklist of measureable indicators	MLF, LGA and MHCDGEC	3	5,000	15,000	15,000	15,000	15,000	15,000
		2. Review of implementation strategy	One meeting per year	1	10,000	10,000	10,000	10,000	10,000	10,000
		3. Conducting Monitoring and Evaluation activities	One M&E after every other year	3	30,000	30,000		30,000		30,000
			TOTAL			**5,702,220**	**1,997,880**	**3,102,180**	**2,549,000**	**3,013,380**
			Grand Total							**16,384,660**

Annex 2: List of stakeholders their responsibilities, and likely impact on surveillance

S/N	Stakeholder	Stakeholders' Responsibilities	Likely impact on surveillance
1.	Associations of Producers, Traders and Processors	• Prompt, accurate, and quality reports • Timely and accurate report/advisory services	Moderate
2.	COSTECH	• Timely and reliable research outputs • Research support, appraisal and findings dissemination • Sustainable collaboration and networking	Moderate
3.	Department of Wildlife	• Undertake wildlife surveillance • Timely and accurate reports • Sustainable collaboration and networking	Moderate
4.	Development partners	• Timely and accurate plans/reports • Provide advisory services and consultation • Sustainable collaboration and network • Provide financial and technical support	Moderate
5	Field Officers working in holding grounds, livestock markets and quarantine station	• Timely provision of animal health service • Timely and accurate report/advisory services • Frontline surveillance soldier	High
6	Financial Institutions	• Timely provision of financial support • Transparency and accountability	Moderate
7	General Public	• Accurate report/information	High
8	Government Boards (i.e. TDB, TMB)	• Timely and accurate plans/report • Financing surveillance operations	High
9	International NGOs, Agencies and organizations	• Sustainable collaboration and networking • Timely and accurate report/advisory services • User/environmental friendly technological packages • Timely and accurate plans/reports • Sustainable surveillance • Financial support • Technical support	Moderate
10	Law enforcers	• Regulate livestock movement • Disease control	Low

S/N	Stakeholder	Stakeholders' Responsibilities	Likely impact on surveillance
11	LGAs	• Timely and accurate reports • Sustainable collaboration and networking • Affordable, quality and prompt supply of biological	High
12	Livestock farmers	• Prompt and accurate diagnostic reports • Use of vaccines and diagnostic services • Clear guidelines and information of surveillance plans	High
13	Local NGOs, CBOs, FBOs	• Sustainable collaboration and networking • Timely and accurate report/advisory services	Moderate
14	Meat inspectors	• Prompt, accurate and proper diagnostic services • Timely and reliable report/advisory services	High
15	Media	• Accurate report/information • Transparency	Moderate
16	Ministry of Health, Community Development, Gender, Elderly and Children (MHCDGEC)	• Timely and accurate report • Prompt, accurate and proper diagnostic services • Sustainable collaboration and networking • Sharing of surveillance reports	Moderate
17	Ministry of Livestock and Fisheries (MLF)	• Timely and accurate reporting • Prompt testing and accurate diagnostic services • Increased performance	High
18	Other Government Ministries/ Departments/ Agencies (MDA)	• Timely and accurate report/advisory services • User/environmental friendly technological packages • Accurate and proper diagnostic services	Moderate
19	Politicians	• Timely and accurate plans/implementation/reports	Moderate
20	Poultry hatcheries and breeder farms	• Implement disease control strategy by vaccination • Timely and accurate report/advisory services • Submission of samples for testing and diagnostic services	High
21	Professional and Paraprofessional Associations	• Clear guidelines and standards • Adherence to surveillance protocols	Moderate

S/N	Stakeholder	Stakeholders' Responsibilities	Likely impact on surveillance
22	Public and private veterinary laboratories	• Reporting of diseases incidences to the DVS • Engagement in surveillance system • Good private and public relationship	High
23	Ranches and dairy farms	• Prompt and accurate testing and diagnostic services • Affordable, quality and constant supply of biological and technological packages • Timely and reliable report/advisory services	High
24	Regional economic communities	• Sustainable collaboration and networking • Timely and accurate report/advisory services • Prompt and accurate testing and diagnostic services • Continuous surveillance of animal diseases	Moderate
25	Regulatory bodies i.e. VCT	• Standards are followed • Regulations are followed	Moderate
26	Research institutions	• Sustainable collaboration and networking • Appropriate and affordable research programs • Quality publication / report • Address gaps to inform surveillance	High
27	Tanzania Veterinary Laboratory Agency (TVLA)	• Early detection of diseases • Confirmatory tests of the infections • Disease control through deployment of vaccines	High
28	Training institutions	• Sustainable collaboration and networking • Timely and accurate reports • Appropriate and affordable training programs	High
29	Veterinary pharmaceuticals, biological, equipment, reagents, chemicals and other inputs dealers	• Affordable, quality and prompt supply of biologicals and user/ environmental friendly technological packages • Sale of reputable diagnostic kits • Timely, quality and reliable report/advisory services	Moderate

Terminology/Vocabulary

Accurate report	Report that does not contain error on data and information but may not be complete
Non-TADs	A diseases that does not qualify to be characterized as transboundary animal disease
Quality report	A complete report in terms of information required without errors
Surveillance	Close observation especially of suspected event
Surveillance post	Is a station responsible for close follow up of suspected events that is less capable than the Zonal Veterinary Centre (ZVC)
Transboundary animal diseases	Disease that cross international boarders
Unregulated	Not controlled or supervised by regulations or laws
Zoonotic disease	A disease which can be naturally transmitted between humans and animals

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