THE UNITED REPUBLIC OF TANZANIA

MINISTRY WATER AND LIVESTOCK DEVELOPMENT

RINDERPEST EMERGENCY PREPAREDNESS PLAN

FOR

TANZANIA

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EXECUTIVE SUMMARY

Rinderpest is one of the most serious viral diseases that is included in list A of the Office international des Epizooties (OIE.) It spreads rapidly and has devastating economic effects, with the ability of crossing over borders and infecting neighbouring countries thus fitting squarely as a Transboundary Animal Disease (TAD).

It therefore calls for an explicit emergency plan that can be activated to curb any incursion of the disease within the shortest possible time (early detection and rapid response mechanisms of disaster management principles).

The Tanzania animal health policy stipulates improvement in the national capacity for early warning and early reaction against Transboundary Animal Diseases (TADs), particularly with emphasis on Rinderpest (RP), Foot and Mouth Disease (FMD) and Contagious Bovine Pleuro-pneumonia (CBPP). For Rinderpest it is the intensification of active surveillance and emergency preparedness activities following provisional declaration of freedom from the disease with effect from July 1998. As for CBPP, FMD and other transboundary diseases like Lumpy Skin Disease (LSD), Rift Valley Fever (RVF) and Newcastle Disease (ND); the strategy is to reduce the risk of their further spread by accurately defining their epidemiology for progressive control and eventual eradication. The diseases are important as far as safe trade of livestock and their products are concerned.

Tanzania declared herself provisionally free from Rinderpest with effect from July 1998 and since then has embarked on a process of intensive surveillance leading to verifiable international recognition by the World Animal Health Organisation (OIE) as free from the disease and infection.

Like all other notifiable diseases, suspicion of Rinderpest is subject to compulsory reporting according to the Animal Disease Ordinance (Cap 156) and any occurrence of Rinderpest in Tanzania will constitute a national emergency. In case an incursion happens the activities earmarked in the Flow diagram in this document shall be implemented along with the Food and Agriculture Organization (FAO) Standard Operation Procedures (SOP) for Good Emergency Management Practices (GEMP)

Current knowledge of the nature of the disease is given in this document starting from the characteristics of the causative agent to clinical features, diagnosis and preventive measures. Now that vaccination has been stopped, in Tanzania for 5 years (1997-2002) the entire cattle population and the large wild ruminant herds are highly susceptible and it would be a devastating loss if the disease were to be re-introduced. The national strategy is to build the capacity for an "Early Warning System" (EWS) to be able to detect the disease and eliminate it by the quickest and most effective means using a combination of strategies.

Rinderpest Emergency Preparedness Plan contains description of the principles and procedures to be adopted in the event of a Rinderpest incursion so as to restore the status of Rinderpest freedom in accordance with the provisions of the International Animal Health Code Chapter 2.1.4 (OIE 2001). In the event that rinderpest occurs in Tanzania activities shown in the accompanying flow diagram shall be activated immediately (i) the National Animal Diseases consultative committee and the National Animal diseases Emergence Committee shall be in force, (ii) depending on the

recommendations of the Rinderpest expert team and the extent of spread of infection a stamping out policy with full compensation shall be considered first where the cattle population in the high risk zone does not exceed 500 otherwise vaccination ,which is the most practical option shall be the ultimate choice,(iii) The DVS/CVO shall assume direct command with the field veterinary staff ,use the Animal Disease Emergency Fund set up to cater for immediate response actions and then apply for emergence funds facility from the Treasury through the Disaster Management Office of the Prime Ministers Office as well as apply for funds from the PACE-AU-IBAR/EU Emergence funds facility to facilitate the rapid response activities, and (iv) other operations stipulated in the FAO Empress Standard Operating Procedures shall apply. A resource inventory is given and details of responsibilities and actions to be taken by the central co-ordination and at the field level are described in the Contingency Plan.

The work plan and budget has been worked out in order to facilitate operations of the plan. The activities will require a total of 200 million Tsh. Therefore, funding will have to be solicited from other sources including commitment from the Government of Tanzania (GOT).
These arrangements shall be tested from time to time by simulation exercises to test their practicability and using the experience gained regular reviews in the light of the epidemiological situation of Rinderpest in the country and in the East African region shall be made

In compliancy to regional agreements (PACE-AU-IBAR) these arrangement will be endorsed at national level by the Permanent Secretary of Ministry responsible for Livestock Development and by the AU-IBAR at regional level and shall be kept by the Director for Veterinary Services/Chief Veterinary Officer.

Suggestions and recommendations for amendment should be forwarded to: -

The Director for Veterinary Services,; Ministry of Water and Livestock Development, *P. O. Box 9152; Dar Es Salaam Tanzania.*

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Completed by Dr.Mohammed M.Bahari PACE TZ National Project Coordinator

Signature and Date----------

Read and Accepted by Dr.Barnos W. Kimario Director of Veterinary Services Tanzania

Signature and Date----------

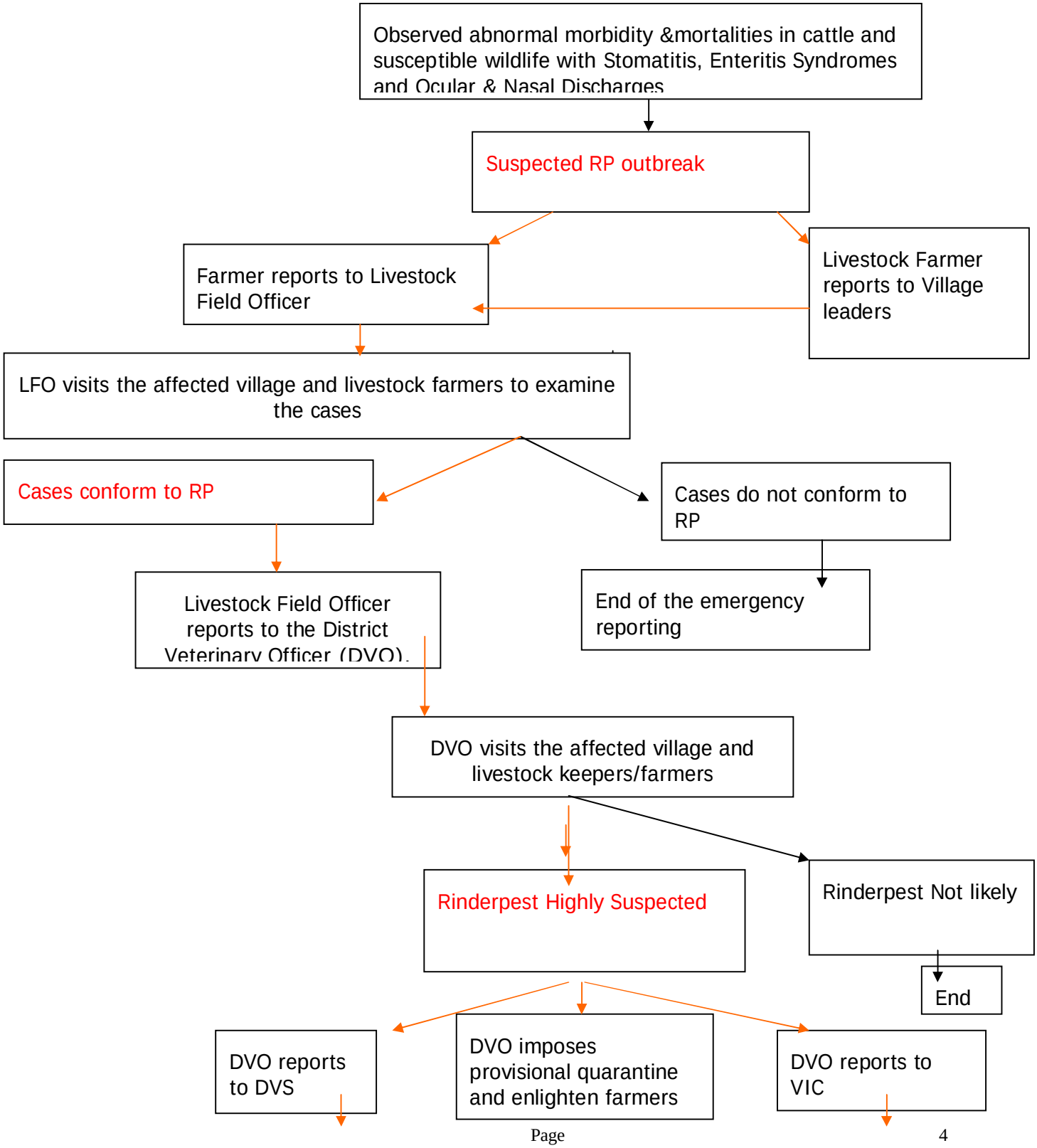
Endorsed by Mr.Bakari Mahiza-Permanent Secretary Ministry Of Water & Livestock Development

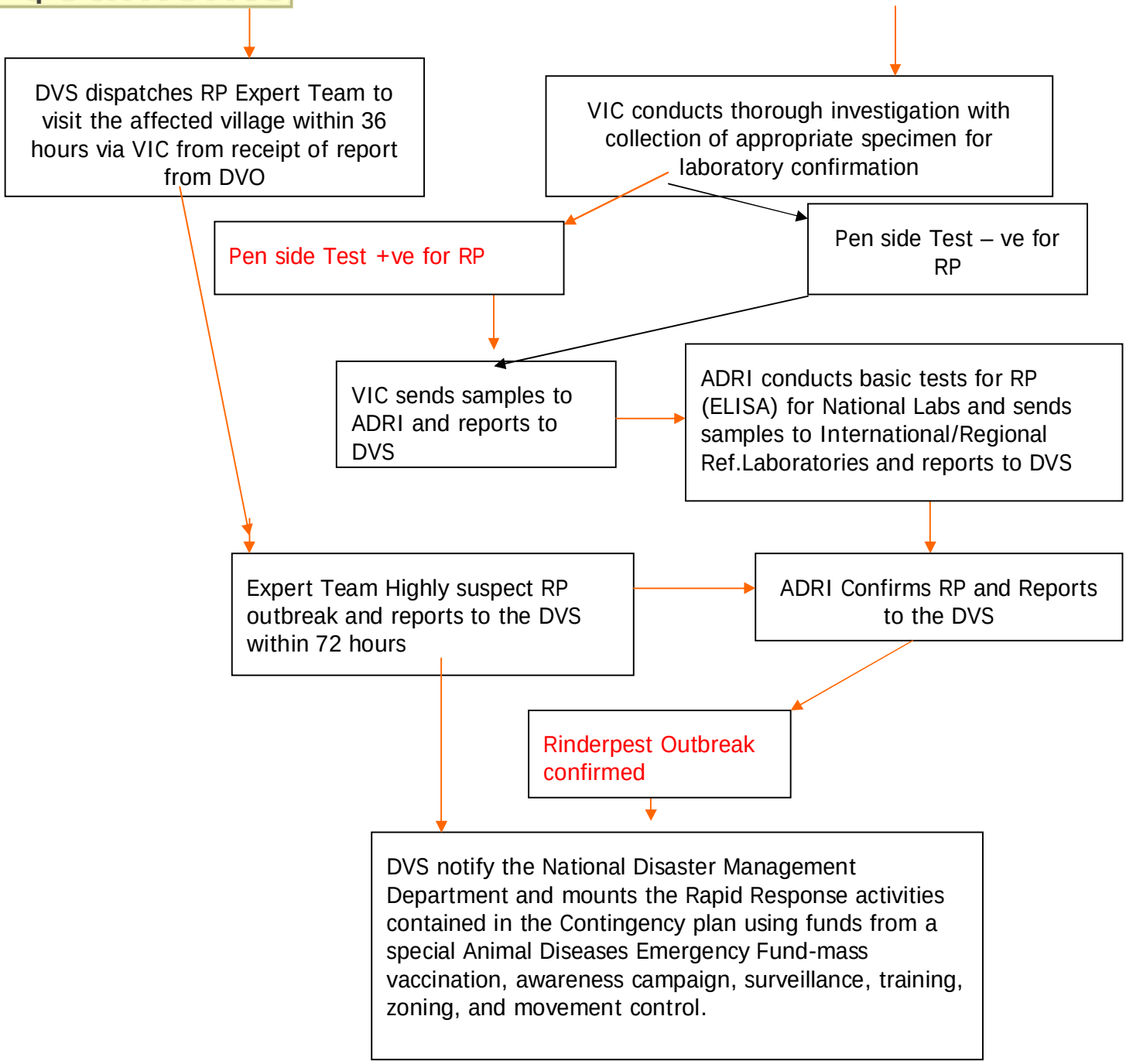
Signature and Date----------

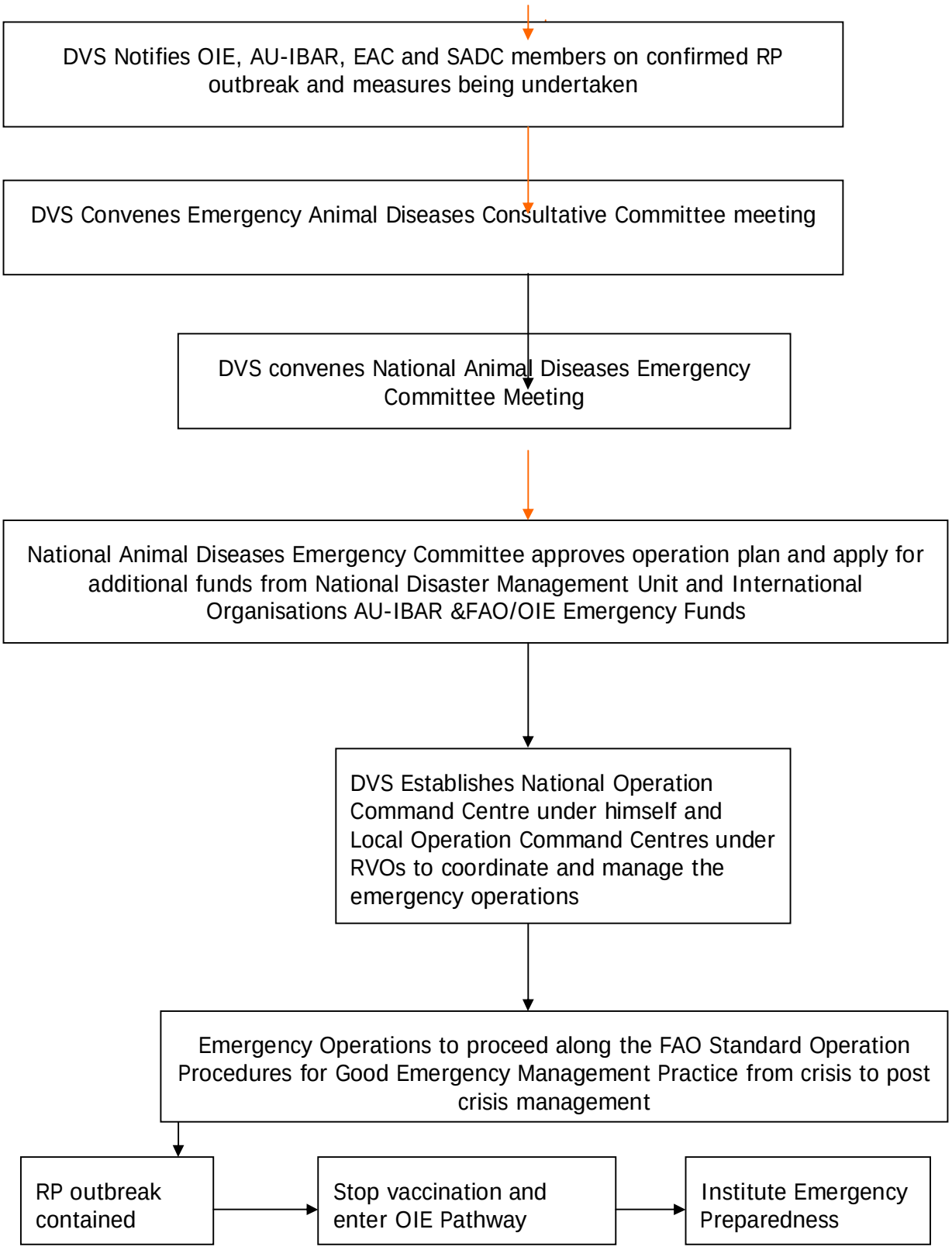
Endorsed by Dr.Jotham Musiime Acting Director African Unity Inter African Bureau Of Animal Resources

Signature and Date----------

FIGURE 1 FLOW DIAGRAM OF ACTIONS TO BE UNDERTAKEN IN CASE OF RINDERPEST OUTBREAK (FROM SUSPICION, CONFIRMATION, RESPONSE TO POST CRISIS MANAGEMENT)







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PREFACE

Emergency preparedness planning for Animal Diseases of economic importance is becoming a normal practice in good resource management .The Food and Agriculture Organisation (FAO) of the United Nations (UN) is providing guidelines in Good Emergency Management Programme (GEMP) for Transboundary Animal Diseases (TADs)

This document is prepared to give an outline for the control and elimination of Rinderpest in the event that it is re-introduced in Tanzania. The document forms what is described as the Rinderpest Emergency Preparedness Plan, which is one of the components of National Animal Disease Emergencies Preparedness Plan for Tanzania. It sets out Rinderpest eradication and control measures as approved by the National Animal Diseases Emergency Committee for use in case of an incursion of Rinderpest into the country.

Rinderpest is designated as a List A disease by the Office international des Epizooties (OIE). List A diseases are defined as "communicable diseases which have the potential for serious and rapid spread, irrespective of national borders; with serious socio-economic or public health importance and which are of major importance in the national and international trade of animals and animal products". The principles contained in this document for the diagnosis and management of outbreak of Rinderpest conform to the OIE International Animal Health Code Chapter 2.1.4 (2000), which is reproduced in annex 1.1.

The FAO EMPRES programme includes Rinderpest in the list of strategic Transboundary Animal Diseases (TADs) and has identified the Global Rinderpest Eradication Programme (GREP) as its prime thrust. In Africa, the co-ordination of a continental programme for Rinderpest eradication was masterminded by the AU/IBAR through the Pan African Rinderpest Campaign (PARC). The New programme- Pan African Control of Epizootics (PACE) has the main objective of final verifiable eradication of the disease from the continent. Thus FAO EMPRES and AU/IBAR/PACE are addressing Transboundary Animal Diseases[1] and the two programmes collaborate closely in eradicating Rinderpest.

In July 1998 Tanzania declared itself provisionally free from Rinderpest and has embarked on a process for intensive surveillance leading up to international recognition by the OIE as free from Rinderpest infection.

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1 Transboundary Animal Diseases are defined as those of significant economic, trade and/or food security importance that can easily spread from one country to another and reach epidemic proportions requiring regional approach to control and prevent them.

Any suspicion of Rinderpest is subject by the Animal Diseases Ordinance (Cap 156) to compulsory notification to the official veterinary service and any occurrence of Rinderpest in Tanzania would constitute a national emergency.

This document describes the principles and procedures to be adopted in the event of a Rinderpest emergency in order to eliminate infection as quickly as possible and to restore the status of Rinderpest freedom in accordance with the provisions of the International Animal Health Code Chapter 2.1.4 (OIE 1999). The document is based on the FAO Manual on the Preparation of National Animal Disease Emergency Preparedness Plans and the Manual for Preparing National Rinderpest Contingency Plans (FAO, 1999).

These arrangements have received government blessings and the approach of Emergency Preparedness Planning for Animal disease outbreak has been incorporated in the Agriculture Sector Development Strategy (ASDS). The Ministry Of Water and Livestock Development responsible for Veterinary Services is the custodian of this document

Acronyms

AD-AHS	Assistant Director Animal Health Services
ADRI	Animal Diseases Research Institute
AGID	Agar Gel Immunodiffusion
AI	Artificial Insemination
CBO	Community Based Organizations
CBPP	Contagious Bovine Pleuro-pneumonia
CRL	Central Railway Line
CVL	Central Veterinary Laboratory
DSM	Dar-Es-Salaam
DVS	Director Of Veterinary Services
EA	East Africa
EAC	East Africa Community
ECU	European Currency Unit
EEC	European Economic Community
cELISA	Competitive Enzyme-Linked-Immunosorbent Assay
ELISA	Enzyme-Linked-Immunosorbent Assay
IELISA	immunocapture Enzyme-Linked-Immunosorbent Assay
EMPRES	Emergency Prevention Systems
EU	European Union
FAO	Food and Agriculture Organization
FMD	Foot and Mouth Disease
GEMP	Good Emergency Management Practice
GOT	Government of Tanzania
GREP	Global Rinderpest Eradication Programme
IBAR	Inter-African Bureau of Animal Resources
Kg	Kilograms
LMA	Livestock Member Associations
Lt	Litres
MAC	Ministry of Agriculture and Cooperatives
NGO	Non Governmental Organisation

NSCA	National Sample Census in Agriculture
AU	Organization of African Unity
OIE	Office International des Epizooties
PACE	Pan African Control of Epizootics
PACE–TZ	Pan African Control of Epizootics Tanzania
PARC	Pan African Rinderpest Campaign
PPR	Peste des Petits Ruminants
PVP	Private Veterinary Practitioners
RAO	Regional Authorizing Officer
RNA	Ribonucleic Acid
RT-PCR	Reverse Transcription Polymerase Chain Reaction
SADC	South African Development Cooperation
SUA	Sokoine University of Agriculture
TADs	Transboundary Animal Diseases
TCRV	Tissue Culture Rinderpest Vaccine
TANAPA	–Tanzania National Parks
TAWIRI	Tanzania Wildlife Research Institute
TVA	Tanzania Veterinary Association
Tsh.	Tanzanian Shillings
UNDP	United Nations Development Program
USD	United States Dollars
VIC	Veterinary Investigation Centre
VNT	Virus Neutralisation Test

PART 1

1 RINDERPEST DISEASE

1.1 NATURE OF THE DISEASE

Rinderpest, (cattle plague) or Sotoka, as it is also known in Swahili, Lodar in Maasai and Lendela in Sukuma language is typically, an acute contagious disease of wild and domesticated ruminants and pigs characterised by sudden onset of fever, ocular and nasal discharges, erosive stomatitis, gastro-enteritis, dehydration and death. Morbidity and mortality rates can approach 100% in fully susceptible populations. Traditional livestock keepers the Maasai, Sukuma and Gogo recall the signs and effects and can recognise Rinderpest even though has not occurred in its typical form in livestock since 1950's The 1997 outbreak in wildlife was first noted and reported to the Veterinary Services by the traditional livestock keepers who reported buffaloes were running blind and dying in Mkomazi Game Reserve and Tsavo National Park in neighbouring Kenya as in the 1950's Rinderpest outbreaks.

Formerly widespread throughout Europe, Asia and Africa, Rinderpest is now limited to fairly well define foci in South Asia, the Near East and Eastern Africa. In Eastern Africa, today, it is largely a disease of the pastoral herds in Southern Sudan, and Somalia, from which the disease if not contained may spill over into wildlife and agro-pastoral cattle populations of neighbouring countries Kenya and Uganda both of which borders with Tanzania and thus posing a real threat.

Tanzania has declared freedom from Rinderpest disease with effect from 1998 .On the basis of risk assessment, there is a high risk of its re-introduction and therefore it is prudent to have an Emergency Preparedness Plan that would take care of mounting rapid response contingency measures when the inevitable happens.

1.1.1 1.1.1 Aetiology

Rinderpest virus is classified as a paramyxovirus in the genus Morbillivirus. It is a negative single stranded, non-segmented ribonucleic acid (RNA) virus belong to the same genus with the viruses that include the causative agents of human measles (MDV), canine distemper (CDV), Peste des Petits Ruminants (PPR) and diseases, which have plagued marine mammals (DMV&PDV) (seals and cetaceans). Recent serological surveys (1997-98) of small ruminants have failed to detect PPR antibody; thus PPR does not occur in Tanzania.

The mortalities that were experienced in 1997-98 in small ruminants were due to Contagious Caprine Pleuro-Pneumonia (CCPP) and flood related diseases mostly foot rot and Helminthioses (Wambura 2000) How ever PPR being a related virus to Rinderpest would continue to be monitored in our surveillance activities during the emergency preparedness period and as a differential diagnosis to rinderpest in small ruminants.

Paramyxovirus diseases of sea mammals have never been identified in Tanzania.

Current knowledge dictates that there is only one sero-type of Rinderpest virus, but there are distinct strains of the virus known as Lineages that reflect geographical location of their isolation in Africa and Asia. Lineage I strains (Egypt/84,RBK/W.Pokot/86,RBK/Kiambu/88, RBS/Wakobu/92) are more pathogenic than Lineage 2 strains. The later were formerly believed to be highly pathogenic to wildlife susceptible species such as buffaloes but of recent according to Richard Kock 2001(personal communication) mild cases of clinical manifestations in buffaloes have been observed in Kenya (2001)

1.1.2 Susceptible species

Although all cloven-hoofed animals are probably susceptible to Rinderpest infection, overt disease occurs most commonly in cattle, domesticated water buffaloes, and certain wild species of which the Cape buffalo, eland, lesser kudu, giraffe, warthogs and bush pigs appear to be the most susceptible.

Cattle and water buffaloes amongst livestock are susceptible to Lineage 1 showing acute to per-acute syndromes characteristic of Rinderpest. How ever cattle are less susceptible to Lineage 2.In lineage 2 infections cattle only show mild signs of nasal discharges, lacryimations and slight to no diarrhoea that are difficult to detected unless under close scrutiny.

Rinderpest in small ruminants is relatively rare and most reports of Rinderpest in small ruminants both in Africa and Asia turned out to be PPR. Infection in sheep and goats is often transient and sub-clinical. Experiments carried out in Tanzania in 1966 by Macadam showed that under close contact infected goats could transmit infection to cattle. There is no evidence, in Africa, to suggest that small ruminants can maintain Rinderpest independent of cattle.

Camels are in apparently infected and also appear to play no role in Rinderpest maintenance.

Rinderpest causes high morbidity and mortality in the susceptible wildlife species of the African plains when it is introduced into them from surrounding cattle populations. Susceptible wildlife species the African Buffalo, kudu, eland and warthog succumb to per-acute infections characterised by corneal opacities, diarrhoea and deaths while the bushbuck, bush pig, dik-dik, duiker, giraffe, sitatunga and wildebeest get acute infections from both Lineage 1 and 2 infections.

There is no evidence to suggest that wildlife populations can maintain the disease indefinitely without re-introduction of the disease from cattle. Breeds of cattle differ in their clinical response to Rinderpest viruses. Zebu cattle are generally more resistant than taurine cattle and crossbreeds.

For that matter wildlife surveillance for Rinderpest is used as a monitoring tool for any circulating RPV strain and would thus continue to be emphasised in during the emergency preparedness phase

Rinderpest does not infect humans.

1.1.3 Transmission

Rinderpest spreads between herds and to new areas by movement of infected animals. Infected cattle harbour the virus for no more than three weeks and there is no known carrier state. Infected cattle shed virus and are infectious to other cattle for one to two days before the appearance of clinical signs. Therefore, cattle may spread virus through markets and transport long distances before clinical evidence of the disease is observed. Infection is usually transmitted by contact with secretions and excretions from infected animals, primarily by inhalation. The virus is found in expired air, nasal secretions, nasal and ocular discharges, saliva, faeces, milk, semen and urine. Transmission is mainly by aerosol over short distances but transmission over distances of up to 100 metres or more is possible at night. Insects are believed not to be important vectors.

In Tanzania Rinderpest had spread previously through cattle movements between herds and to new areas by movement of infected animals. Cattle spread the disease at watering points and grazing areas especially during the drought periods when large herds come close and when livestock keepers move their animals from areas where animals are dying thinking that they are bewitched. In doing so they spread the disease from infected to clean areas.

Livestock movement control thus features very strongly in this Emergency Preparedness plan for rinderpest

The virus is inactivated rapidly at environmental temperatures, which prevail in most of Tanzania i.e.by solar radiation and desiccation. Pasture is infective for a maximum of 24 hours; contaminated enclosures are infective to cattle for not more than 48 hours and buildings for a maximum of 96 hours.

Rinderpest virus is inactivated rapidly by autolysis and putrefaction so it will not survive for more than 24 hours in carcasses of animals, which have died from the disease. However, infected meat stored at $+4^{o}C$ can remain infective for at least seven days.

Transmission of the virus by inanimate vectors, such as contaminated clothing or equipment, can occur, although usually over a relatively short period and distance.

Transmission of rinderpest disease in wildlife often incriminates contacts with domestic animals as the source and there from spread within herds by the close social contacts and migratory patterns wildlife animals maintain Vultures and carnivores might also have a role in the transmission of RP by spreading contaminated materials of dying animals from the disease from one area to another.

Clinical surveillance monitoring unusual morbidities and mortalities in game sanctuaries would thus also be a tool in tracking accidental introduction of RP.

Transmission could also occur through trade and transport where animals are transported long distances. This could be by transporting infected but incubating animals or meat from infected animals from infected to none infected areas

1.1.4 Clinical signs

Although many textbooks refer to Rinderpest as a dramatic plague, it should always be remembered that Rinderpest could often present itself as a mild disease depending upon which strain is involved How ever; even with the same strains clinical signs are different in different susceptible species. Mild cases of Rinderpest outbreaks have been observed in both livestock (1997 outbreak in Tanzania) and wildlife (2001 outbreak in Meru National Park Kenya)

Clinical signs of Rinderpest have been described to vary from per-acute cases observed in virgin areas where susceptible animals had no previous exposure to the disease to acute, and sub-acute cases. Sub-acute cases are difficult to detect and they form the mild forms of Rinderpest and most often are attributable to Lineage 2 infections.

In the Emergency preparedness Plan Tanzania shall concentrate more on the observation of clinical signs suggestive of Rinderpest in cattle,buffaloes,kudu and elands that have been noted to present overt clinical signs when infected with Rinderpest.

Sheep and goats sometimes show similar clinical signs as those in cattle from acute sub-acute to in apparent infections but the cause of the disease in these animals is shorter. Pneumonic symptoms are predominant and the acute cases die in 6 to 7 days

Clinical searching for Rinderpest as a tool for early detection in the Emergency Preparedness Plan would use available and often updated documented information such as the FAO Animal Health Manuals (1-Diagnosis of RP; 6 &7 recognising RP) and audio-visual pictures.

Detailed description of clinical signs manifestations in different species would thus not be expounded more in this document.

The following description of clinical signs manifestations concern castle and sometimes buffaloes.

In uncommon peracute Rinderpest reactions, a sudden onset of fever, in-appetence, depression, and congestion of the visible mucous membranes lead to death within two to three days before oral erosions develop.

Typically, in acute Rinderpest, infected cattle develop clinical signs of disease within 15 days of exposure and the disease progresses through four distinct but overlapping phases: a prodromal fever phase, a phase of mucosal erosion, a diarrhoeic phase and convalescence in surviving animals. The prodromal fever is often missed, as other clinical signs are minimal except in lactating cows whose milk yield falls. Overt illness is clearly evident one to two days later when the animal becomes restless and stands depressed and aloof from the herd. Respirations are shallow and rapid and serous secretions from the eyes and nose increase. The appetite is reduced and constipation is evident. Onset of the phase of mucosal erosion is marked two to five days after the onset of fever by the appearance of small raised areas of necrotic epithelium on the buccal mucous membranes. This is the first sign suggestive of Rinderpest. The lesions enlarge and coalesce and, when the necrotic epithelium is abraded, reveal shallow erosion with a red layer of basal cells. Salivation is stimulated and becomes profuse and the breath is foetid. Erosive lesions can be found on all the mucous membranes of the oral cavity, nose and vulva.

Thick yellow patches of necrotic cells often cover the eroded epithelium. Nasal and ocular discharges become mucopurulent. Thirst is intense. Soft faeces are passed frequently and the animal passes into the diarrhoeic phase as fever drops. The faeces become fluid and dark brown in colour and contain mucus, epithelial shreds and specks of clotted blood. The fluid faeces may even be coloured red from the loss of blood. Affected animals arch their backs and strain; frequently exposing congested and eroded rectal mucosae. Respiration is laboured and painful and there may be an audible grunt on expiration. In fatal cases the diarrhoea continues to worsen, causing rapid dehydration and visible wasting. Sternal recumbence follows and death supervenes six to 12 days after the onset of the fever. If animals survive, the erosions heal diarrhoea stops and a prolonged convalescence follows with recovery to full health taking many weeks. Pregnant cows commonly abort in the convalescent period.

The evolution and course of sub acute Rinderpest are similar to those of the classic syndrome but are less marked. One or more of the cardinal features are often absent. This is particularly so with oral erosions, which may be obscure and can easily be missed. Most affected cattle recover and convalescence is short. A frequent sequel of sub acute infections is activation of latent pathogens, notably protozoa, occurring four to six days after the start of the prodromal fever. The signs of the activated infection may predominate and mask the appearance of Rinderpest.

African wild ungulates differ markedly in their manifestation of Rinderpest infection. African buffaloes react with a clinical syndrome essentially the same as that in cattle, whereas Lesser Kudus exhibit profuse discharge of tears and corneal opacity leading to death from dehydration and starvation.

Any unexplained incidence of morbidity and mortality in wild ungulates should be viewed with suspicion and investigated thoroughly for Rinderpest. Generally, strains of Rinderpest virus, which are of a low profile in cattle, cause severe disease in susceptible wildlife species. They are, thus, sensitive indicators of the presence of such strains in cattle.

1.1.5 Gross pathology

In acute typical Rinderpest, the carcass is dehydrated, emaciated, soiled and foetid. Extensive erosions are usually present in the oral and nasal cavities and extend into the pharynx and oesophagus but lesions in the fore-stomachs are rare. The folds of the abomasums are congested and oedematous with lines of erosions on their margins. The pyloric portion of the abomasums may show haemorrhagic ulceration. Congestion and oedema in the small intestine is less intense but the Payer's patches are swollen and prominent, dark red or black in colour. The mucosal surface of the caecum is ulcerated and often showing marked strips, red in fresh carcasses and black in older carcasses. These are the so-called "zebra stripes" extending throughout the colon as far as the rectum.

In addition, the colon mucosal surface is ulcerated and epithelial shreds and haemorrhage may be present. The upper trachea is congested with longitudinal haemorrhages. In early deaths, the lungs are normal but in older cases, there is conspicuous interlobular and alveolar emphysema. Indeed, it may be the most striking lesion found in the carcass. In early deaths, the lymph nodes are swollen and oedematous, but in late deaths they are shrunken and grey with radial streaks in the cortex. The spleen is usually normal but occasionally there are subserosal haemorrhages along the margin.

1.1.6 Differential diagnosis

Clinical and pathological signs are highly suggestive of Rinderpest, and should be considered to be Rinderpest in areas at risk until proved otherwise.

However, they are not pathognomonic, being indistinguishable from those of fatal mucosal disease syndrome of bovine viral diarrhoea complex and very similar to Malignant Catarrhal Fever. Epidemiological features and laboratory diagnostic tests are important in distinguishing between these diseases.

Many febrile illnesses mimic some of the clinical signs of Rinderpest.

Foot-and-mouth disease, Bovine virus diarrhoea/mucosal disease, Infectious bovine rhinotracheitis, Contagious Bovine Pleuro-pneumonia and East Coast fever have all been confused with Rinderpest. Bovine virus diarrhoea can be especially difficult to differentiate from low profile strains of Rinderpest in young calves although laboratory tests can discriminate easily.

1.1.7 Diagnostic criteria

Rinderpest should be suspected when there is any unusual occurrence of morbidity associated with Stomatitis Enteritis Observations/Syndromes (SEO/S) or ocular and nasal discharges, diarrhoea and death - the syndrome typified by the "Three (3) Ds". A contagious disease with fever, oral erosions (Stomatitis) and Diarrhoea (Enteritis) is highly suggestive of Rinderpest. Though there are many diseases in cattle with Stomatitis Enteritis Observations (SEO) which occur in Tanzania such as Bovine Viral Diarrhoea (BVD), Infectious Bovine Rhinotracheitis (IBR), Foot and Mouth Disease (FMD) and Malignant Catarrhal Fever (MCF) Rinderpest must be considered and ruled out by reliable laboratory tests first whenever SEOs are encountered.

The Emergency Preparedness Plan shall put in place means that should be instituted to confirm the causative agent of the Stomatitis Enteritis Observations rapidly.

More emphasis would be placed on carrying out repeated investigations, sample collections, differential diagnosis and laboratory testing during Rinderpest probable outbreak investigation as called for by the Performance Indicators along the OIE Pathway to Freedom from Rinderpest Disease and Infection.

Epidemics in highly susceptible cattle populations occur rapidly spreading from animal to animal and herd to herd, with animals of all ages becoming sick and dying. Any disease outbreak with any or all of these features is highly suggestive of Rinderpest and must be treated as such until proved otherwise. The "mild" or "low profile" form of Rinderpest causes difficulties as one or more of the characteristic features may be missing.

Lesions may be limited to ocular discharge with only a fleeting appearance of limited oral lesions in a small proportion of affected calves. Only the younger age groups may be affected, the morbidity rate may be low even in them and the mortality rate may be so low as to be indistinguishable from expected mortality in these age groups.

Low profile strains appear to spread relatively slowly in herds and may take a long time to permeate an extensively managed population, especially in a semi-immune population. However, this is a characteristic syndrome, which should not escape detection for long, especially in a susceptible population. Given the ability to revert to virulence it must be treated with equal seriousness as full-blown classical acute Rinderpest.

1.1.8 Immunology

There is only one immunogenic type of Rinderpest virus and experience of one strain will confer immunity against all other known strains. Thus, one good vaccine will protect against all field strains. By one week after vaccination with a live vaccine most cattle develop a serviceable degree of immunity.

Calves acquire immunity passively with the intake of colostrum from their immune dams and the antibodies can persist for as long as nine months, preventing vaccine virus from generating an immune response. This is an important factor, which must be taken into account in understanding the epidemiology of the disease in endemic areas, and areas subjected to partial immunisation.

Serum antibodies are first detectable within one week of infection with classical Rinderpest strains. However, animals infected with low profile strains take 10 days or longer to seroconvert, as do animals vaccinated with Tissue Culture Rinderpest Vaccine (TCRV). Serum antibodies are a major component of active immunity against infection and play an important role in recovery.

1.1.9 Laboratory diagnosis of Rinderpest

Procedures and techniques for the laboratory diagnosis of Rinderpest are detailed in the FAO Manual for Rinderpest Diagnosis (FAO 1996) and the OIE Manual of Standards for Diagnostic Tests and Vaccines (OIE, 1996)

Three main approaches are available for laboratory confirmation of Rinderpest.

These are:

- Isolation of virus in cell cultures - an expensive procedure of great value but suitable only for specialised laboratories

- Demonstration of viral antigens. Two methods are widely used, namely the agar gel immunodiffusion test, which is highly specific, economical and rapid but rather insensitive, and immunocapture enzyme-linked immunosorbent assay (ELISA), which is highly sensitive, specific and rapid but requires specialist expertise and equipment. Pen-side tests are under development for field use.

- Detection and molecular characterisation of viral ribonucleic acid (RNA) through reverse transcription polymerase chain reaction (RT-PCR) and nucleotide sequencing. This is highly sensitive and specific but also requires even more specialist expertise and equipment.

- Demonstration of serum antibodies produced after Rinderpest virus infection. Monoclonal antibody-based competitive ELISA is widely used and has largely replaced the use of virus neutralisation assays. Single serum samples are of high value for serological surveillance for Rinderpest, sero-monitoring of Rinderpest vaccination and diagnosis in Rinderpest free countries where Rinderpest vaccination is not practised. However, antibodies produced in response to TCRV cannot be differentiated from those resulting from field infection. Thus, in the face of continuing vaccination serological surveillance results can be very difficult to interpret and diagnostic confirmation is problematic unless paired samples can be tested in parallel.

1.2 RISK ASSESSMENT OF RINDERPEST INVASION.

In Emergency preparedness planning it is imperative to conduct Risk Analysis and put in place measures to manage the risk of the hazard under consideration in this case Rinderpest invasion. Risk Analysis is becoming an important tool for epidemiologists and when conducted in detail gives a picture on the likelihood of the hazard occurring, where would it come from, what elements are vulnerable, what is its socio-economic impact when it occurs and what are the mitigation actions. The epidemiology of the disease, distribution pattern in time and space, population size of susceptible species and nature of the disease are often described in Risk analysis. This Risk Analysis of Rinderpest takes note of the past history of the disease in Tanzania; the past outbreaks, most recent ones and current world distribution of the disease. How much close these active foci are and what danger do they pose to Tanzania are some of the areas this section would address.

1.2.1 Administrative division of the country

Tanzania lies between 1^{o} and 9^{o} S of the Equator, bordering Kenya and Uganda, (to the North) Rwanda, Burundi, Democratic Republic of Congo (to the West), Zambia, Malawi, Mozambique (to the South) and to the East, the Indian Ocean.

Apart from the huge area of about 940,000 square kilometres that Tanzania extends, half of land area consists of bush, thickets and Miombo woodland. National Parks, conservation areas and game reserves cover Twenty-five (25) percent of the land area.

Favourable environments for Tsetse flies in large areas of the country make livestock population to be extremely scattered.

Tanzania has a typical tropical climate with temperatures decreasing from East to West due to the presence of the Indian Ocean and the Great Lakes. The lakes that are found to the north, west and southern borders namely Lake Victoria, Tanganyika and Nyasa respectively makes the climatic scene of Tanzania to be fairly gentle.

Due to difference in topography and altitudes, the rainfall patterns also varies accordingly within the country. Those areas around the lakes in west and the southern highland have a unique weather pattern, as they do not experience bimodal rains as other parts of Tanzania.

Tanzania has twenty one (21-July 2002) administrative regions. Each region has between 3-8 districts depending on the size and population of the region. Since 1996 Tanzania has decentralised its functions where by most decisions concerning agriculture and livestock are made at the districts levels. At the district there is a District Commissioner (DC) who is under Regional Commissioner (RC). Under the DC there is a District Executive Director (DED) who is in-charge of all technical departments. Under DEDs there are District Functional Managers for each Line Ministry who make up the District Management Team.
For livestock and Animal Health Services in particular there is a District Agriculture and Livestock Development Officer (DALDO) under whom there are Subject Matter Specialists one of whom is the District Veterinary Officer (DVO). The DVO is responsible for overseeing animal diseases control issues and technically is required to report to the Director of Veterinary Services on technical issues giving a copy to his DALDO and DED. This provision of reporting technical matters directly to the DVS at the Ministry headquarters is not used in practice. Efforts would be made to improve the reporting frequency and quality as required for by Performance indicator Number 1 (Effective Veterinary Services in place gauged by DVOs report submission).

A one line of command from the DVS down to the Livestock Field Officer through the DVOs on Technical Issues is provided for in the Regional Administration Operational Guidelines that translates the Regional Administration Act 1997.

1.2.2. Livestock Production Systems:

In Tanzania, livestock production systems can generally be classified into two major categories, the traditional and commercial farming.

1.2.2.1 Traditional Farming:

1.2.2.1.1 Pastoral Systems

Nomadic and semi – nomadic systems fall under the pastoral system, which accounts for about 20 percent of the nation's cattle herds. These herds are managed primarily for milk production and animals are slaughtered on special occasion's e.g. ritual ceremonies or in emergencies.

Maasai have for a long time practised this system, but of late a number of other famous tribes in livestock keeping like the Barbaigs and Taturus have joined the system by migrating to central and southern highland regions, looking for r pastures and stock water..
The movement of these animals from north to south and vis-versa is a big problem and compounding factor in disease control in Tanzania.
If Rinderpest would occur it will spread like bush fire because of these difficult to control livestock movements.
It is anticipated that livestock movement control under the pastoral system could be improved through changes to land tenure rights, improved animal husbandry, rangeland improvement that includes stock water provision and pastures development.

1.2.2.1.2 Agro-pastoral System

This is a mixed farming system that involves both crop and livestock production, which accounts for about 60 – 70 percent of cattle population. It is commonly found in Mwanza, Shinyanga, Tabora, Singida and Dodoma regions. Livestock provides manure, and sources of draught power during land preparation and cultivation of both subsistence and cash crop production. Likewise, during harvesting and marketing of crops, draught power is used with exceptions to few individuals who own other means of transportation facilities.

The national cattle herd composition as compiled during the National Agricultural Sample Survey 1997/98 is as follows: Bulls 7.8%; Oxen 11.96%; Cows 36.76%; Steers 8.91%; Heifers 13.05% and Calves 21.53%. By looking at these percentages, Cows are the dominant group of which the industry can be banked on in terms of increase in livestock production. Due to the existence of constraints ranging from disease to drought and nutrition growth rate and reproduction in traditional livestock keeping has been hindered and as such livestock development has attained limited progress.
Livestock under this system of production were stationary and confined in Northern Tanzania, however due to increased drought conditions and expansion of crop land there has been much movement of animals under this system down south in the 1970s & 80s. There movement southwards has been accompanied with the movement southwards of CBPP in the 1990s.

There are close ethnic ties being maintained between those who have moved southwards and the ones who have remained and this entails exchange of animals in cultural functions.

This poses an epidemiological danger in case a rapidly spreading disease like Rinderpest occurs. Livestock movement control strategies under system are also important in disease containment

1.2.2.2 Commercial Farming:

This system is quite small in Tanzania and does not pose much danger in disease transmission. The system is being promoted following the economic reforms pegged on private ownership/participation and market lead economy.
The private sector running commercial livestock production is profit motivated and depends on efficient marketing systems. Transboundary Animal Diseases (TADs) like Rinderpest affecting livestock trade/marketing severely affects this production system. Operators of this production system would thus be contacted and their cooperation sought in keeping at bay Rinderpest and other TADs

1.2.3 Livestock Economic Value

Livestock contributes significantly to the incomes of many people in Tanzania .The livestock sector contribute 18-20 percent of the National Gross Domestic products (GDP) besides contributing livestock products to human nutrition and draught power The potential for increased production, consumption and further contribution to the national economy is very high.

Table 1 shows the livestock populations according to the National Sample Census in Agriculture in 1997/98 This table also shows the estimated capital value of livestock, calculated on the average current value per animal. Table 2 on the other end indicates the estimated output from livestock based on technically sound assumptions and available statistics.

These useful attributes would be brought to naught in the event of Rinderpest outbreak and there for Emergency Preparedness Planning for its possible accidental occurrence to minimise the devastating loss is imperative.

TABLE 1: LIVESTOCK POPULATIONS AS PER NSCA 1998/99

Type	Numbers ('000s)	Value in Tsh per head	Total Value in Billions Tsh. (X 10^9)
1	2	3	4
Traditional cattle	16,400, 000	50, 000.00	830,0
Grade Dairy cattle	300, 000	250, 000.00	75.0
Goats	11, 600,000	5, 000.00	58.0
Sheep	3, 500,000	5, 000.00	17.5
Pigs	800 000	7, 000.00	5.6
Poultry	48, 000, 000	500.00	24.0
Total Value			1123.1

Table 2: Annual Output of Livestock Products in Tanzania

COMMODITIES	Unit	Milk x10^6 Lt	Meat x10^6 Kg	H/S x10^6 Pcs	Eggs x 10^6	Others X10^6 Ha/T	Unit Value TZS	Total Value x 10^6 TZS
CATTLE								
Milk								
Grade Dairy	Lt	200					300	60 000
Traditional	Lt	600					100	60 000
Beef								
Clean Off-take	Kg		153				800	122 400
Salvage Off-take	Kg		50				400	20 000
Hides	Pcs			1 000			3 000	3 000
Draft	Ha					1000	10 000	10 000
Manure	Ton					6.0	10 000	60.000
Subtotal cattle								335.4
SMALL RUMINANTS								
Meat	Kg		61				1 500	91 500
Skins	Pcs			1 500			500	750 .0
Manure	Kg					2.0	1 000	20.0
Subtotal Shoats								
PIGS								
Meat	Kg		9				1 500	13 500
POULTRY								
Traditional								
Meat	Kg		35				1 500	52 500
Eggs	No.				100		60	6 000
Manure	Kg					5	10 000	50
Commercial								
Meat	Kg		10				2 000	20 000
Manure	Kg					0.2	10 000	2
Eggs	No.				300		100	30 000
TOTAL		800		2 500	400			489 782

The total capital value of livestock in Tanzania is estimated at 1,602.6 billions Tsh equivalent to about 1.781 billions USD, 86% of which is the value of cattle susceptible to the diseases. The estimated gross output at present prices (1999) is worth 489.7 billions TZS (equivalent to about 610 million USD) per year of which 56% is accrued from cattle.

1.2.4 Organisational Structure of the Veterinary Services (Animal Health Section)

The administrative structure of the Veterinary Section of the Livestock Division has undergone many changes over the years. An organisation structure that is almost similar to the one in place in 1969 is being put in place.

3 Directorates have been created for the Livestock Sector -Directorate of Animal Production, Directorate of Research and Directorate of Veterinary Services (Figure 4)

The Directorate of Veterinary Services has mandate in disease control, animal disease research, stock route management and veterinary public health. The Director of Veterinary Services (DVS) reports directly to the political authority (Permanent Secretary and Minister) and exercised a full chain of command for the above responsibilities from the Zonal Offices under veterinary Investigation Centres. Unlike in the past due to Regional and Local Government Administration Reforms there is no wholesome direct line of command between the headquarters and the districts or villages. The link is provided for in the law in purely technical matters. A chart to show the new organisation structure is annexed. The Director of Veterinary Services is empowered by law (Animal Diseases Ordinance Cap 156) to assume a direct chain of command, especially in the event of a disease emergency

1.2.5 Rinderpest Epidemiological Situation

Many authors have described the history of Rinderpest in Africa. The origin of the virus, which was responsible for the Great Rinderpest pandemic in Africa, is only vaguely known. It may well be that the disease was introduced prior to the "Great Rinderpest Pandemic" in the early 1890's. The Italian Armies in Ethiopia, the British Armies in Egypt or the Germany Military expeditions in East Africa may have introduced the disease either from Europe, India, or Arabia.

In Tanzania Rinderpest was probably first observed in 1891, much latter than CBPP, which may have been around in Maasai land since 1880's. From the then Tanganyika (now Tanzania) Rinderpest swept swiftly through Malawi (1892), Zambia (1893), Zimbabwe, Angola and Congo (1894), Botswana and Namibia (1896) to the Cape (1897). It is alleged that Rinderpest was in 1899 eradicated from South African but in 1901 there was re-introduced from Namibia.
The history of fighting against Rinderpest in Tanzania starts when Rinderpest was eradicated from South Africa in 1902. All efforts were concentrated in the then Tanganyika to make sure that the disease did not cross again the southern border. The idea by then was to push the disease northwards as far as possible from the Central Railway Line (CRL). This was done through quarantines, strict cattle movement restrictions and passive immunisation by the use of hyper-immune sera. Economic problems and civil wars hindered these efforts. In 1912-1914, civil wars in the country disrupted Veterinary services and as a result the disease occurred south of the CRL.

Due to further economic recession from 1930-1935 there were no funds for Rinderpest control.

Thus by the year 1938 Rinderpest was threatening to cross the southern border to Zambia, Malawi and Mozambique. The 1938 outbreaks necessitated multinational approach to prevent spread of the disease to Southern Africa. Representatives from Zambia, Malawi, Tanzania and Kenya met in Nairobi to consider measures to combat the epidemic. In 1939 another meeting was held to evaluate the 1938 campaigns and recommended an eradication policy for Tanzania.

Subsequent campaigns involved the use of the Kabete Attenuated Goat Vaccine. By 1953 Rinderpest in Tanzania was almost under control. The achievements of the then Tanganyika Government in controlling Rinderpest by annual vaccination campaigns were described as remarkably successful.

After independence, control and surveillance of Rinderpest in Tanzania was a joint venture between Kenya, and Uganda under the then East African Community (EAC). Until when the JP 15 was extended to EA Rinderpest was already well under control in Tanzania compared to Kenya and Uganda as indicated by relatively lower numbers of outbreaks from 1960 – 1967 (Table 3).

TABLE 3 OUTBREAKS OF RINDERPEST IN EAST AFRICA 1960-1967

Year	Tanzania	Uganda	Kenya
1960	4	29	44
1961	4	2	13
1962	0	5	7
1963	0	12	12
1964	0	8	0
1965	1	1	12
1966	1	2	1
1967	0	0	3
Total	10	59	92

This was the time when the new tissue culture vaccine was developed and prepared for use in the field. Since then, this vaccine has shown to be highly immunogenic and produces life long sterile immunity.

The success of Rinderpest control in Tanzania at the time was very convincing and this was noted by a joint FAO/OIE committee, which met in 1973 to advice on revised conditions to facilitate importation of livestock products from areas not entirely free from exotic diseases.

Evidence of occurrence of Rinderpest in Tanzania after the 1966 has been mainly from clinical field investigations. .

The 1998's rinderpest outbreak started with an outbreak in wildlife animals at Lobo area Serengeti National Park in 1981 where 2000 buffaloes died. Cattle in the vicinity were also infected and thus judged to be the source of the infection in wildlife. Susceptible wildlife animals in Ngorongoro Crater were not affected implying fewer contacts between cattle and wildlife in the crater than in the plains.

A second outbreak was in 1982-83 that was first spotted in Mkomazi Game Reserve were several wildlife species buffaloes, kudus, and elands died.

In August to September 1982 Rinderpest was suspected in Kilimanjaro and Arusha regions in the districts of Same, Mwanga and Ngorongoro. Supportive evidence for the occurrence of Rinderpest in the districts of Same and Mwanga was obtained from serological results of sera collected from affected villages and assayed for antibodies.

No virus isolation was made but confirmatory diagnosis was obtained from Polymerase Chain Reaction (PCR) positive results from samples collected from wildlife of Serengeti.

The results showed that 29% of 106 sera collected from villages where Rinderpest had been suspected were positive by the Immuno-capture ELISA. These two districts had not been vaccinated since 1972 and the presence of Rinderpest antibodies was indicative of infection

The disease did not spread to other areas apart from the ones around Mkomazi game Reserve and Serengeti National Parks implying confinement to the limits of Livestock and wildlife migration/movement between Kenyan and Tanzania sides.

In all 2 outbreaks the source could be traced to have connection with Kenya and this gives a lesson to this Emergency Preparedness Plan that if rinderpest is to recur in Tanzania it would most probably originate from Kenya. All vigilance must that be observed when ever there are reports of rinderpest like disease outbreaks in Kenya.

Strategic annual vaccination campaigns were carried out from 1982 and there were no outbreaks of Rinderpest until the last incursion in 1997 from Kenya. The last suspected Rinderpest case in Tanzania was reported in June 1997 in the Hai district of Kilimanjaro region.

The 1997 RP outbreak was traced to originate from South Kajiado Kenya and moved southwards into Monduli, Hai and Ngorongoro districts. There were no overt clinical signs of Rinderpest like the ones observed in 1982/83. Mild rinderpest was implicated, as there were positive test results from samples collected from Lositete Village in Karatu District by PCR with no virus isolation. There were positive Clear view pen side tests at Nainokanoka and Magaiduru villages close to Serengeti National Park in Ngorongoro district, Olerian area in Monduli district and Lerangwa in Hai district.

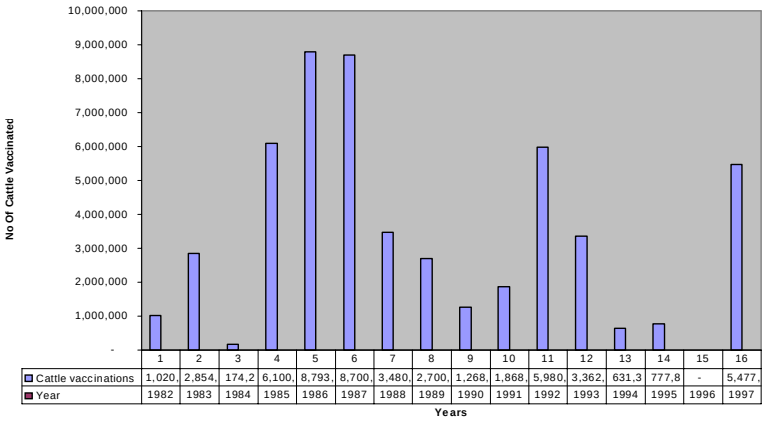
Following resurgence of Rinderpest in 1982, the Government of Tanzania applied for emergency help from the donor community. Vaccination campaigns started in November 1982 and continued in some districts north of the CRL until 1984. Thereafter nation wide Rinderpest vaccination campaigns were initiated and implemented under SADC, supported by the EEC. Yearly vaccinations were aimed at vaccinating the entire cattle population in the country (12.5mil), followed by sero monitoring of the national herd immunity. Figure 3 shows the annual vaccinations carried out against Rinderpest from 1982 to 1997.

During these vaccination campaigns livestock keepers were required to take their cattle to crush sites. Vaccination teams inoculated the cattle with the cell culture Rinderpest vaccine. To ensure safekeeping of the vaccine, cold storage facilities was provided and enough diluents prepared by the Veterinary Laboratories. In order to assess the immunity response, representative sera samples were collected from each crush site prior to vaccinations and five weeks after the vaccinations.

Serological results showed an average of 75% sero positives in all age groups after the 1987 vaccination campaigns. This was quite impressive considering the logistic problems encountered. This together with the absence of clinical disease since 1985 was an indication that Rinderpest threat in Tanzania was minimal..

The Pan African Rinderpest Campaign, Tanzanian Component (PARC-TZ) that started in 1991 had adopted a strategy of establishing an immune barrier along the common border with Kenya to prevent any incursions. Unfortunately there was an incursion in early 1997 but it was very quickly eliminated through complementary emergence assistance from the EU, FAO-EMPRES and the UNDP,

Figure 3 Rinderpest Vaccinations from 1982 to 1997



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cattle vaccinations	1,020,	2,854,	174,2	6,100,	8,793,	8,700,	3,480,	2,700,	1,268,	1,868,	5,980,	3,362,	631,3	777,8	-	5,477,
Year	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997

FIGURE 3 RINDERPEST VACCINATIONS 1982-1997

Immediate efforts were taken to determine the extent of the affected areas by searching for clinical disease and undertaking sero-surveillance in those parts it was suspected the disease might be present. “Immuno-sterilisation Technique” was adopted to combat the situation. The objective was to prevent any further incursion by protecting cattle along the international border and to control and contain Rinderpest within the districts north of the Central Railway Line.

The country was divided into two Zones A and B (See Map I). Zone A consists of the districts south of the CRL and Zone B those north of the CRL. Zone B was further divided into two areas II and I. Area I, consisting of the districts along the border with Kenya, where vaccinations were carried out twice within a period of seven months; hence immunosterilised. Area II consisted of the districts immediately north of the CRL where vaccination was carried out once.

The last vaccinations were carried out between August and October 1997. Since then active surveillance has been going on especially in the villages along the Kenya border and also in the wildlife and so far no Rinderpest has been found.

The results show that the average antibody prevalence rates were 84%, 75% and 9% in Areas1, II and zone A respectively On the basis of these results and the lack of evidence of clinical Rinderpest, Tanzania declared herself provisionally free from Rinderpest in Zone A and Zone B with effect from January and July 1998 respectively.

Since 1997 in accordance to the OIE Pathway Tanzania ceased vaccinating against Rinderpest routinely on annual basis. Meanwhile there is an on going disease surveillance and reporting system capable of detecting Rinderpest if it were to reappear.

A continuous assessment is also being carried out through sero surveys conducted on annual basis to be able to detect presence or absence of infection within unvaccinated cattle populations. If all goes well Tanzania should be declared free from Rinderpest disease by the year 2003.

1.2.6 Lessons Learnt from handling recent RP outbreak

This Emergency Preparedness Plan draws lessons from the Rinderpest outbreaks of 1982/83 and 1997.

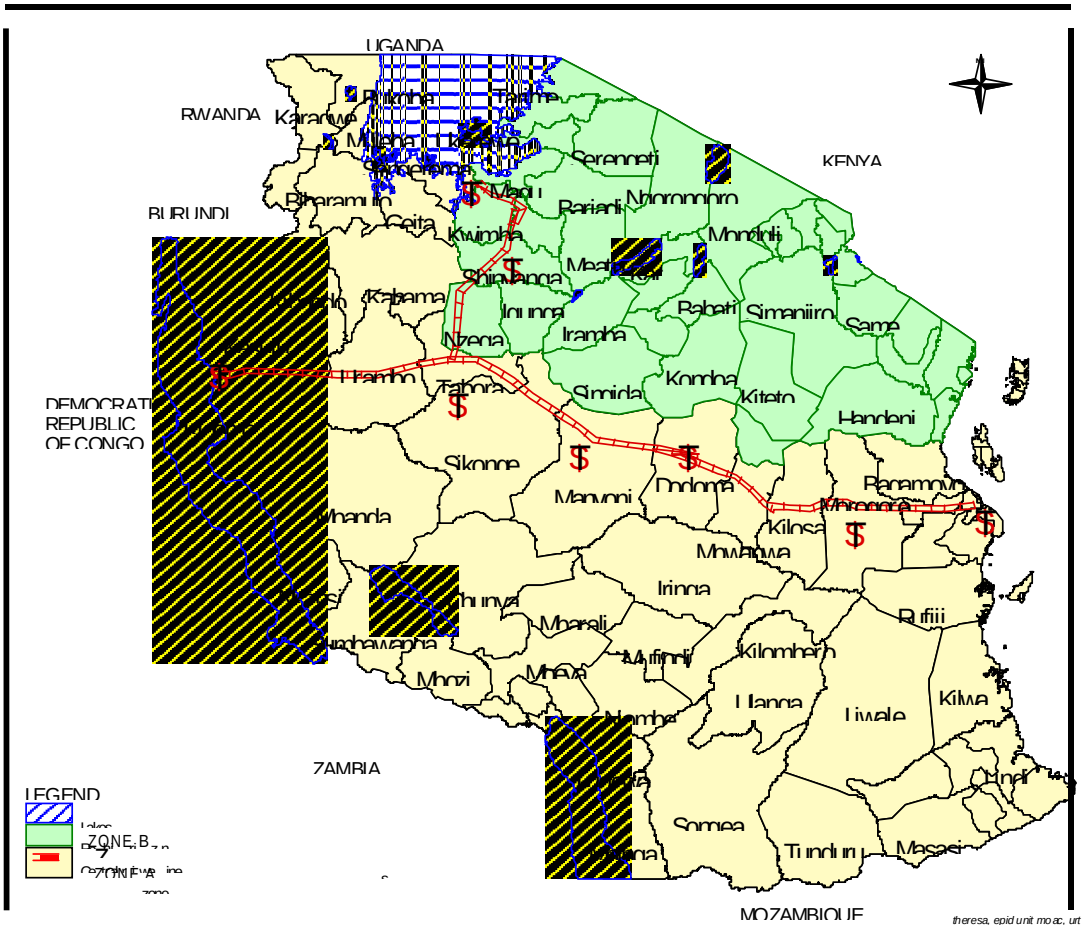
There were no contingency planning measures in place in 1982/83. The disease spread to a wider area and catastrophe was evaded by the cattle population having high levels of protective immunity from the previous mass vaccination campaigns.(1976-1980).

The Donor community and joint regional efforts under SADC and AU –IBAR have significant roles to play in the fight against Rinderpest where individual countries alone can not afford to mount effective control programmes.

The control of rinderpest in domestic animals is sufficient to arrest the spread and devastation of the disease in wildlife. In both outbreaks the disease disappeared from wildlife when it was controlled in domestic animals.

Rinderpest is a potential hazard to wildlife and thus a threat to the Tourist Industry. The Wildlife department must thus be involved and collaborate with the Directorate of Veterinary Services in its control

MAP I DECLARATION OF PROVISIONAL FREEDOM FROM RINDERPEST DISEASE



In 1997 outbreak the Directorate of Veterinary Services was better prepared compared to the 1982/83 outbreak.

Therefore Emergency Preparedness planning works and minimises losses when emergencies occur and are handled promptly and properly

Ring vaccination is a practical option and was shown to work in both outbreaks of 1982/83 and 19997 unlike the draconian stamping up measures, which are difficult and socio-economically difficult to adopt.

In the 1997 outbreak all animals at risk were vaccinated. There were equipments, vaccines cold chain and operational funds that were obtained and used within a short time.

It was also demonstrated that Private Veterinary Practitioners have a role to play in emergency disease operations such as in vaccination campaign through contract assignments (sanitare mandate)

The last lesson learnt was that Rinderpest control needs cooperation with various organisations-neighbouring countries and regional bodies such as the SADC and AU-IBAR.

The Emergency Preparedness Plan thus emphasises establishment of close contacts through exchange of mails telephone-mail, fax messages and cross border meetings. A list of contacts is thus included in this document.

1.2.7 Livestock migration and trekking/trade routes

Livestock movement/migration in Tanzania is a major factor, which contributes to a large extent the spread of the diseases within the country. Livestock keepers especially the Maasai, Sukuma, Gogo and others (pastoralists and agro pastoralists) move across the country as shown in Map II in search of pastures and water for the survival of their animals and themselves.

There is a lot of livestock movement in the area along the border with Kenya, which was vaccinated against Rinderpest. This area was zone B (Map 1) the control and surveillance area in 1995-1997 that was declared provisionally free from RP disease in July 1998. The area, which was not vaccinated against Rinderpest (zone A) had been free from RP ever since 1956 and was thus declared free from RP disease much earlier in January 1998. This area also has a problem of livestock movement control which has led to the spread of disease especially CBPP to other areas.

Significant portions of cattle have moved from Lake Zone (Sukuma and Nyamwezi cattle), Central Zone (Barbaigs cattle) and North-eastern Zone (Maasai cattle) into the Southern highlands and Morogoro Wami plains.

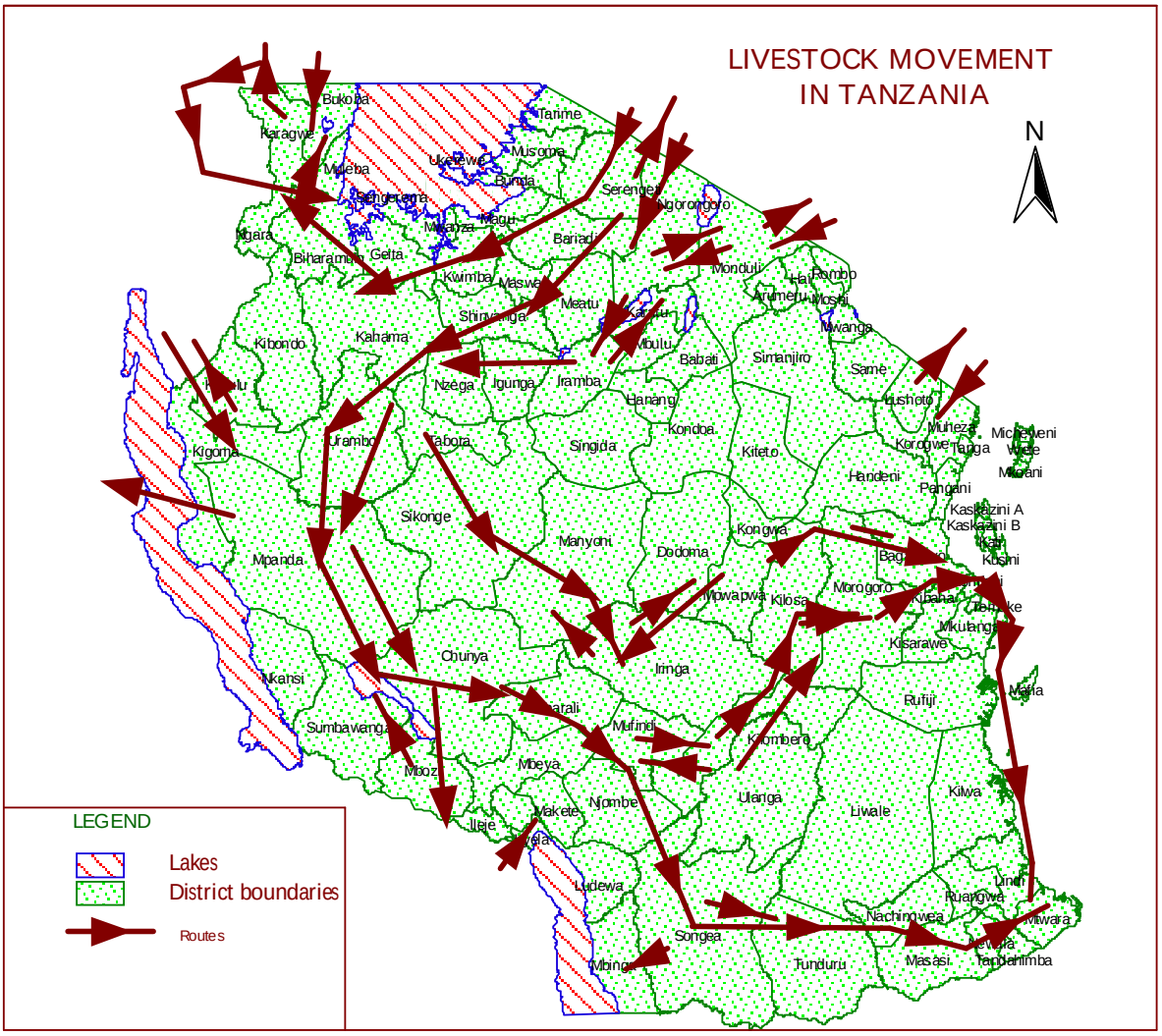
This poses difficulties in livestock movement control where close ethnic contacts are still being maintained between the livestock keepers who have settled in the different areas in the country.

They maintain exchange of animals through dowry payment and contractual stock care that fosters spread of diseases.

In the Emergency Preparedness Plan for RP livestock movement control would be enforced through Local Government By-laws as well as under the principal law –Animal Diseases Ordinance Cap 156.

Improvement in livestock movement control especially of trade stock is expected in the future as efforts of the Tanzania Livestock Marketing Project (TLMP) in rehabilitating stock routes, holding grounds, checkpoints and quarantine stations in the country.

MAP 2 LIVESTOCK MOVEMENT PARTENS IN TANZANIA



1.2.7 Wildlife: A Special Problem in the Eradication of Rinderpest in Tanzania.

Tanzania has a very large ruminant game population, which is susceptible to Rinderpest. While the disease in cattle can be eradicated by vaccinations, this is not possible in wild animals and alternative methods such as game fencing are also not feasible. It is common knowledge, however that when Rinderpest disappears from cattle clinical Rinderpest also disappears in game.

Some cases of serological evidence of Rinderpest infection in game may be difficult to trace back. These could arise as a result of mild strains, which persist unrecognisable and could become hot. Our knowledge of the dynamics of Rinderpest virus strains in the wildlife is limited.

The Kabete "O" vaccine has been used very successfully in controlling Rinderpest in Tanzania but the question is, whether continuous use of the vaccine for many years in areas where vaccinated cattle are in contact with wild animals could present problems.

When Rinderpest occurred in wildlife in Kenya recently (October-December 2001) immediate efforts were devoted to determine the risk of introduction into Tanzania by searching for clinical disease and undertaking serosurveillance in those parts it was suspected the disease might be present.

The Wildlife Directorate is strengthening the department of Veterinary Services under TANAPA and TAWIRI that are competent and well placed to detect Rinderpest and other TADS in wildlife as well as carry out both active and passive surveillance (sero & clinical) of the disease. Collaborative arrangements and contacts between the DVS/MWLD and VD under TANAPA and TAWIRI are under way to facilitate early detection of RP and reduce its devastating effects in both livestock and wildlife animals.

Collecting sera from Rinderpest susceptible species mostly from buffaloes, impala and giraffe carries serological surveillance in wildlife. Collection is done using immobilising drugs (narcotics under dangerous drugs care), darting (darts, dart gun) and chasing the animals in difficult terrain. In difficult terrain like that of Mkomazi and West Kilimanjaro National Parks Helicopters or light winged aircrafts would be needed. These could be hired and their prices range from 250 to 700 US$ per hour as was done in 2002 in the FAO/TCP/0067 (E). The costs involved are very high and thus expensive and this is why the tool as a monitoring strategy is not extensively used. Collection of few samples bearing in mind age structures, herd movement and livestock contacts are adequate unlike in cattle where statistical methods in sample collections are a must.

Rinderpest Serological testing in wildlife is a multi stage procedure involving both National and International Reference laboratory to definitely confirm the disease.

A 4 multi-stage testing protocol recently recommended at the FAO/OIE Regional Workshop that was held in Dakar Senegal in November 2001 will be adopted in RP laboratory diagnosis.

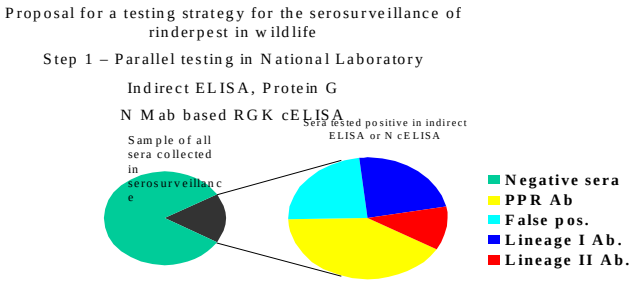
The 4 steps are: -

- Step 1-Screening all sera with N-based iELISA using species specific conjugate. For wildlife, protein G conjugate is chosen. This test eliminates all negative sera.
- Step 2-Positive sera from step 1 are screened with N-based CELISA to differentiate RP from PPR.
- Step 3-Positive sera in Step 2 are then confirmed with H-based CELISA
- Step 4 False negative sera from Step 3 are confirmed by VNT against both RP and PPR viruses.

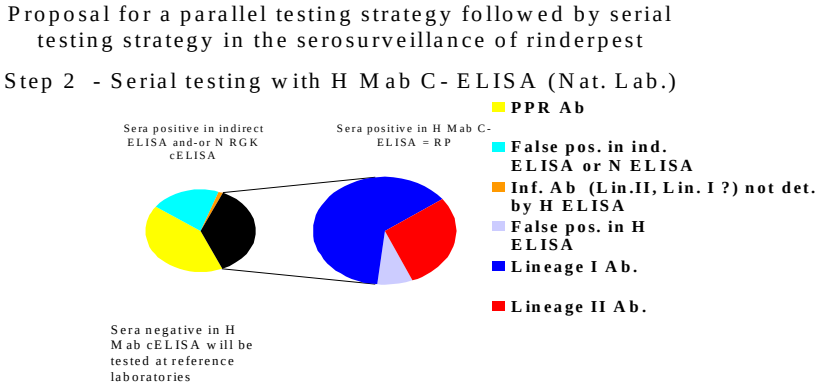
The tests in steps 1-3 will be done at the national laboratory CVL/ADRI Temeke

The various test and reagents needed are shown diagrammatically in figure 3..

FIGURE 3 SEROLOGY TESTING FOR RP AND DIFFERENTIATING LINEAGES 1&2



The figures are adopted from Dr.Richard Kock 2001 (personal communication)



1.2.8 Risk assessment relating to Rinderpest invasion

Rinderpest was last recorded in Northern Tanzania in early 1997 following an incursion from Kenya. Intensive clinical surveillance confirmed 4 outbreaks in Hai, Monduli, Ngorongoro and Mbulu.

Lineage 2 Rinderpest viruses were implicated in these outbreaks but no virus isolation was made from samples submitted. Mass vaccinations involving the immuno-sterilization techniques were made to prevent the disease spreading southwards and to protect wildlife in the infected areas. More than 4 million cattle were vaccinated which was estimated to be to be coverage of over 95%.

Routine vaccinations have ceased in favour of active search for the virus and the country has declared provisionally free from Rinderpest along the OIE Pathway as from July 1998.

Currently Rinderpest is believed to be present in Southern Sudan, Somalia, in the Near East South Asia and Russia. The most likely means of introducing into Tanzania is by spread from infected countries, primarily by migrating pastoralists and also through cattle trade and rustling. As the focus of the disease is relatively quite a distant, the disease would have to cross Kenya and Uganda before reaching the borders of Tanzania.

The level of threat (Risk) of introducing Rinderpest from these pockets is small from the Southern Sudan side but a bit higher from the Somali pocket. There are clandestine livestock movements between Somalia and Kenya, which might end up in Tanzania .If Rinderpest is to recur in Tanzania it is most likely to come from the Kenyan side, as was the case with the 1997 outbreak.

1.2.9 Social and economic effects

An uncontrolled outbreak of Rinderpest could spread widely and rapidly in Tanzania, with devastating effects. High mortality and morbidity would be expected in all age groups of cattle and wild ruminants. Losses in ago-pastoral communities and in the wildlife would be very high in terms of deaths and severe losses of milk, meat, manure, income generated from sales of cattle, curtailed tourism and environmental catastrophe.
The resulting financial losses at local and national level would have a serious effect throughout the country.

These economical losses are not hypothetical. In the 1982/83 Rinderpest outbreak over 200 buffaloes died in Serengeti National Park alone where as in the 1994/95 outbreak in neighbouring Kenya 60% of the buffaloes population of Tsavo National Park disappeared

If Rinderpest became endemic, continuing economic losses would result from disruption of livestock trade and tourism and the cost of control measures including prophylactic vaccinations nation-wide.

In addition to the direct losses, an incursion of Rinderpest into the wildlife, such as the Serengeti complex could lead to a reversion to expensive and protracted vaccination programme of cattle in the surrounding districts for many years. It will take the country many years to regain internationally recognised freedom from Rinderpest infection.

With effective and rapid control, losses would be limited and temporary, although embargo within the infected/control and surveillance zones would cause loss of market opportunities and associated financial loss to non-affected herders. It is therefore imperative to act immediately to control and eliminate the disease if it is introduced.

1.3.0 NATIONAL RINDERPEST ERADICATION POLICY AND RATIONALE

1.3.1 Combined slaughter and vaccination policy

OVERALL POLICY FOR RINDERPEST

Rinderpest is an OIE List A disease that has the potential for rapid spread within and between herds, with serious production losses which have a direct impact on food security and trade in livestock and their products.

The national policy is to detect and eliminate Rinderpest in the shortest possible time, using a combination of strategies:

- Definition of zones consisting of infected and surveillance zones;

- Rinderpest immuno-sterilisation, which involves vaccination of all susceptible cattle in infected and exposed herds in two rounds to achieve elimination of the virus;

- De-contamination of livestock holding facilities to eliminate the virus on infected premises;

- Quarantine and movement controls on animals and animal products in declared zones to prevent the spread of infection;

- Isolation and slaughter of clinically sick and in contact animals in infected area with compensation when the number at risk is less than 500,

- Sanitary disposal of slaughtered and dead animals and contaminated animal products, to minimise the risk of transmission;

- Embargo on animals and animal products in infected zones to prevent the spread of infection;

- Tracing and surveillance to determine the source and extent of infection and to provide ultimate proof of renewed freedom from Rinderpest;

- Awareness campaign to facilitate co-operation of the livestock owning community and the general public.

All operations necessary for the control of an incursion of Rinderpest will be at public expense.

All activities undertaken in controlling an incursion of Rinderpest will be performed in accordance with this Rinderpest Emergency Plan overseen by the National Animal Disease Emergency Committee (NADEC) and implemented by the Rinderpest Emergency Task Force.

The Rinderpest Emergency Task Force will be responsible for implementing disease control measures under the supervision of the Chief Veterinary Officer in accordance with the relevant legislation.

(The Animal Diseases Ordinance Cap.156 and the Veterinary Surgeons Act Cap. 376.) Decisions will be made as approved by the National Animal Disease Emergency Committee.

1.3.2 Strategy to be adopted for containment and elimination

If it were to occur, Rinderpest will have to be introduced by live infected animals. Once introduced it could spread widely and rapidly through livestock marketing and communal grazing. The most efficient strategy to combat an incursion would therefore be to initiate and sustain active surveillance as an early warning system.

The surveillance system should be able to detect cases of Rinderpest outbreak and give a basis for invoking rapid response measures to eliminate such outbreaks in the shortest possible time. This is to be executed through an immediate embargo on infected herds through imposing strict quarantine measures. Livestock movement control and isolation, of infected herds and villages coupled with border rolling back vaccination of all cattle within the zone containing infected herds and those at high risk of infection.

Slaughter and compensation strategies though have dramatic effects on arresting spread of the disease are not easily acceptable socially and financially.

Disease tracing and surveillance will be required to determine the origin and extent of infection so that zoning can be declared for Rinderpest control purposes and, subsequently, to assist in proving regained freedom from the disease.

1.3.3 Zoning for Rinderpest control

On recognition of a Rinderpest emergency, the Chief Veterinary Officer will define the following zones.

A Infected and thus control zone

This in theory is the area around 50 kilometres (km) radius in intensive and 100 km in extensive farming systems from the infected foci and contains all the infected herds, villages and those at high risk of being infected. This will take into account, communities, and natural barriers to livestock/disease movement and obvious topographical features. In practice distance does not matter much in areas where livestock movements are difficult to control and farmers have cultures of moving animals away from infected areas going as far as 200kms in 4-5 days.

In the infected area vaccination and quarantine measures shall be implemented. All cattle of all ages shall be vaccinated.

A surveillance zone.

This is the area that immediately surrounds the infected zone. The size of this area will take into account livestock communities, natural barriers to livestock/disease movement and obvious topographical features and an assessment of the resources available for visiting all holdings (herds and villages or settlements) with cattle to examine animals for clinical disease. The zone will generally extend at least 50 km from the control zone.

Active surveillance for Rinderpest disease shall be carried both clinical and serological. Serum samples from cattle and small ruminants shall be taken at a rate of 15-20 samples in a village with 300-500 cattle population.

These samples shall be tested at the national laboratory (ADRI and some those that shall test negative and tissue samples shall be sent to Regional and International Reference laboratories for Rinderpest –Muguga (KENYA) and Pirbright (UK)

Testing of the samples at the national laboratory shall be fast within 1 week. Putting and maintaining RP diagnostic capacity at ADRI working all the time shall sustain this.

1.3.4 Selected strategy if Rinderpest becomes established

Containment of Rinderpest outbreak depends much on the situation on the ground as to whether the outbreak is detected in time or late and established. If detected in time, it is likely that an outbreak of Rinderpest will easily be contained and eliminated. However, which is most likely the outbreak would not be detected in time and the size of outbreak outstrips the national emergency resources available for control. .In this situation Tanzania would have to revert to a policy of mass immunisation targeted at infected areas with the aim of discontinuing vaccination within one to two years, once the disease is eliminated. The entire susceptible population within the prescribed infected zone would be vaccinated and the efficacy of vaccination monitored serologically.

A zone of intensive active Rinderpest surveillance will have to be maintained throughout in order to separate the infected zone from the rest of the country that could still qualify for designation as Rinderpest disease free in accordance with the provisions of the International Animal Health Code (Annex 1.1) and the OIE Rinderpest surveillance standards (Annex 1.2).

1.3.5 Criteria for proof of elimination

The OIE Pathway is being followed for proof of Rinderpest disease elimination. This is presented diagrammatically in Figure 4. International verification shall be sought and backed by presentation of documental evidence as proscribed in performance indicators for RP surveillance.

In the light of this Emergency Preparedness Plan for RP Tanzania has declared provisional freedom from Rinderpest with effect from January 1998 There was enough proof that the OIE criteria were met as per recommended standards for epidemiological surveillance system adopted in 1998. Notification was given to that effect and the OIE pathway is now being followed subject to international verification for consideration of freedom from Rinderpest in 2003.

Acceptance of freedom from disease and subsequently the infection will be based on intensive disease surveillance failing to detect clinical disease and structured serological surveys to demonstrate that dissemination of Rinderpest virus does not occur.

All actions taken during implementation of the Rinderpest surveillance will be documented and presented accordingly. The dossier of evidence to be presented will include documentation of:

- Analysis of reports and questionnaires used in disease surveillance together with evidence that laboratory samples were taken and investigated for evidence of Rinderpest. Written evidence of all suspected cases and rumours will be made available;

- Surveys carried out in the field will be supported by surveys carried out in slaughterhouses and on markets. These surveys will have to included other sentinel groups such as small ruminants and wildlife;

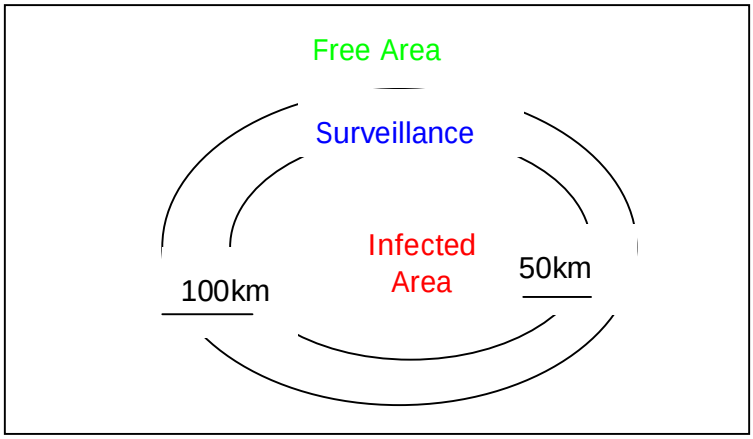
- Systematic serological surveillance at zonal and national level, where appropriate, to demonstrate the absence of Rinderpest antibodies in susceptible populations. The serological surveillance will have clearly demonstrated, by a structured serological survey, the absence of antibodies thereby absence of viral activity throughout Tanzania.

Awareness campaigns carried out to inform the public that the disease has been eradicated but that all suspect cases should be reported;

- Incentive payment and well-publicised mechanisms to the public and the veterinary staff will be initiated to report suspect cases of Rinderpest to the authorities. The National Rinderpest Emergency Committee will decide on how the incentive payment will be effected.

- Follow-up of rumours by rapid and thorough investigation, written evidence, including rumour register, that suspicious disease events were followed up and appropriate actions taken.
- Reports of any deaths in wildlife will be sought. Where wildlife are relatively numerous and have been implicated in previous Rinderpest incidents, active surveillance will include efforts to detect any possible morbidity and mortality in these species. All suspect reports will be followed up, and wherever possible, specimens collected for virological/serological analysis.

FIGURE 4- DEMARCATION OF INFECTED, SURVEILLANCE AND DISEASE FREE AREAS.



PART 2

2.0 RESOURCE INVENTORY

2.1 INTRODUCTION

This section identifies the resources required to combat an incursion of Rinderpest and the means for their mobilisation in event of a disease occurrence..

2.2 COMPOSITION OF THE NATIONAL ANIMAL DISEASE EMERGENCY COMMITTEE- (POLICY SETTING COMMITTEE)

This committee, under the chairmanship of the Permanent Secretary in the Ministry of Agriculture, will meet at least every four months to ensure that emergency preparedness is sustained. The main agenda during the meetings will be to appraise the Rinderpest situation and major animal health issues in the country.

The committee shall comprise of: -

- Permanent Secretary
- Director of Wildlife
- Director Of Veterinary Services/Chief Veterinary Officer
- Assistant Director Animal Health Services
- Asst. Director - Range Management
- Asst Director Livestock Extension Services.
- Asst Director Veterinary Public Health, Livestock Products and Inputs Control
- Disaster Management Focal Point Officer
- Head of the Epidemiology Unit
- Director, Animal Disease Research Institute
- Senior representative from the Ministry of Regional Administration and Local Government
- Senior representative from the Ministry of Finance
- Senior representative from the Ministry of Home Affairs- (POLICE)
- Senior representative from the Ministry of Judiciary and Constitutional Affairs
- Director of Disaster Management and Festivities (Prime Ministers' Officer)
- Representative of the Private Veterinary Sector

- Representative of the Tanzania Veterinary Association
- Representatives of the Livestock Communities (Laigwanan)
- Representatives of Drug/ Vaccines supplier.
- Representatives of the Media both public and private

Designated members and their contact addresses that shall be updated from time to time are shown in Table 4.

TABLE 4: MEMBERSHIP OF THE NATIONAL ANIMAL DISEASE EMERGENCY COMMITTEE

Member and responsibility	Name	Contact address	E-mail Address	Telephone
Permanent Secretary Ministry of Water and Livestock Development Cooperatives	Mr. Bakari A. Mahiza	MWLD P.O. Box 456, Dodoma	taruwasa@africaonline.com	026-2322602 026-2324825 Fax: 026-2322617
Director of Veterinary Services/Chief Veterinary Officer	Dr. Barnos W.Kimario	MWLD P.O. Box 456, Dodoma	dvs.tz@twiga.com	026-2322613
Assistant Director Animal Health Services	Dr. P.Z. Njau	MWLD P.O. Box 456, Dodoma	dlv@raha.com	026-2322611
Assistant Director Veterinary Public Health, Livestock Products and Inputs Control	Mr. J. Mollel	MWLD P.O. Box 9152, Dar Es Salaam	dlv@raha.com	022-2864306
Assistant Director Range Management	Mr. Issae	MWLD P.O. Box 456, Dodoma	dlv@raha.com	022-2864306
Assistant Director Livestock Extension Services	Mr.Mwasha	MWLD P.O. Box 456, Dodoma	dlv@raha.com	022-2864306
Emergency Diseases Control Programmes Coordinator	Disaster Management Focal Point Officer) Dr. Bahari M.M.	MWLD P.O. Box 9152, Dar Es Salaam	neadcc-tz@twiga.com	022-2866452

Epidemiology Unit	Dr. Francis F. Sudi	MWLD, P.O. Box 9152 Dar es Salaam	epid.tz@raha.com sudifrancis@yahoo.com	022-2866446
Animal Diseases Research Institute (ADRI)	ADRI Director Dr. P.A. Mkonyi	ADRI-Temeke, P.O. Box 9254, Dar Es Salaam	cvltemeke@twiga.com	022-2863104
Ministry of Regional Administration and Local Government	Director of Regional Administration & Local Government Acting: Mr. F. Mbonde	P.O. Box 1923, Dodoma	tamisemi@raha.com	026-2322684 Fax:026-2322146/ 2322116
Ministry of Natural Resources and Tourism	Director of Wildlife Services Mr. E. Severe	P.O. Box 1994 Dar Es Salaam	wildlife-division@twiga.com	022-2866408
Ministry of Finance	Commissioner of Budget and Resource allocations A.W.R. Mwaisumu	Ministry of Finance P.O. Box 9111, Dar Es Salaam		022-2119190
Ministry responsible for the police (Anti-Stock Theft Unit)	Commissioner of police stock theft prevention Unit Eliyuko Elihaki (Assistant Commissioner Police, STPU	Home Affairs CTPU, P.O. Box 3011, Arusha.	-	027-2548673
Ministry of Justice & Constitutional affairs	Attorney Generals Chamber Rep Hon. Andrew Chenge	P.O. Box 9050, Dar Es Salaam,	-	022-2117099 Fax: 213236
Department Responsible for Disaster Management PM's Office	Director of Disaster Management PMO -Ms. B.O.	Prime Ministers Officer P.O. Box 3021,	-	022-2117249 022-2117260 0744 384125

	Swai	Dar Es Salaam		Fax: 2117266
TVA Chairperson	Prof. Kambarage	SUA, P.O. Box 3015 MOROGORO	deanfvm@sua.ac.tz	023-2604647 0744 306781 Fax: 023-2604647
Private Vet. Practitioner	Dr. Y. Sinare	P.O. Box 35174, Dar Es Salaam.	vetcare@afsat.com	0741-3250000
Drug/Vaccine Supplier	Dr. H. Mbwile	P.O. Box 78166, Dar Es Salaam	henry@intafrica.com	022-2116335 0744-283015 Fax: 022-2116335

2.3 COMPOSITION OF THE NATIONAL RINDERPEST EMERGENCY COORDINATION COMMITTEE-THE COMMAND CENTR

This Co-ordination Committee will manage implementation of activities in case of Rinderpest incursion. It will be headed by the CVO and answerable to the National Rinderpest Emergency Committee.

It will be comprised of: -

- The Chief Veterinary Officer –The Director of veterinary Services
- The Head of veterinary Department in TANAPA
- The Head of veterinary Department in TAWIRI
- The Disaster Management Focal Point
- Asst. Director Range Management and Livestock Extension Services
- Ass. Director Animal Health Services
- Head of the Epidemiology Unit
- The Director, Animal Disease Research Institute
- The Dean: Faculty of Veterinary Medicine-SUA
- Officers In-charge for VICs Arusha, Mwanza, Tabora and Mpwapwa
- Five District Veterinary Officers from the affected and immediate surrounding districts.

The Committee will be responsible for drawing up detailed instructions and lists of equipment for implementing the Rinderpest Emergency Plan in the event of a Rinderpest emergency. The composition of the task force is shown in Table 5.

TABLE 5: COMPOSITION OF THE RINDERPEST EMERGENCY COORDINATION COMMITTEE-THE COMMANDS CENTRE

Designation	Name	Contact points	Responsibilities
DVS/CVO	Dr B.W.KIMARIO	MWLD-HQ	CVO CHAIRPERSON
TANAPA VET	Dr.T.MLENGEYA	TANAPA	WILDLIFE ISSUES
TAWIRI VET	Dr.R.FYUMAGWA	TAWIRI	WILDLIFE ISSUES
AD-AHS	Dr.P.Z.NJAU	MWLD-HQ	SECRETARY
Disaster Management Focal Point	Dr. M.M.Bahari	MWLD-HQ	DEPUTY SECRETARY
Director CVL- Temeke	Dr. P. A. Mkonyi	ADRI	MEMBER
Epidemiologist	Dr.F.F.Sudi	MWLD-HQ	RAPORTOURE
SUA	Prof. Kambarage	SUA	MEMBER
VIC Arusha	Dr.Mbisse	VIC Arusha	MEMBER
VIC Mwanza	Dr. Ranga	VIC Mwanza	MEMBER
VIC Mpwapwa	Dr. Mghwira	VIC Mpwapwa	MEMBER

2.4 THE RINDERPEST EXPERT TEAM (CONSULTATIVE COMMITTEE ON EMERGEGY ANIMAL DISEASES-CCEAD)

This is the frontline team with specialist expertise, which undertakes field investigation, assesses the evidence for a Rinderpest disease emergency and advises the DLD accordingly.
It comprises, at minimum:

- Veterinary Epidemiologist
- Veterinary Pathologist
- Veterinary Virologist
- Disaster Management Focal Point Officer
-

The composition of the team is shown in Table 6.

TABLE 6: COMPOSITION OF THE RINDERPEST EXPERT TEAM

Designation	Name	Contact points
Veterinary Epidemiologists	Dr.F.F.Sudi	MWLD-HQ-Box 9152 DSM-Tel.255-22-2866446
Veterinary Pathologist	Dr. Kapaga	Box 9254 DSM-255-22-2863104 ADRI/CVL-Temeke
Virologists	Dr. Wambura.	Box 9254 DSM-255-22-2863104 ADRI/CVL Temeke
Disaster Management Focal point officer	Dr.Bahari M.M	MWLD-HQ Box 9152 DSM-Tel.255-22-2866446

2.5 FUNDING PROVISIONS (DRAWING DOWN ARRANGEMENT)

An Emergency Fund of about Tsh 200 million is being established and kept as a separate and special interest bearing standby account to be accessed by the Director of Veterinary Services (DVS) as the Chief Veterinary Officer (CVO) during animal diseases emergence to initiate Rapid Response control measures before further funds applications to the Treasury and Development partners are made.

This fund shall be a bridging source before more and adequate amounts are requested and released from the Treasury through the Disaster Management Unit.

The AU/IBAR Emergency Fund Facility under the custody of the Regional Authorising Officer at AU/IBAR-Nairobi that was established through a grant from the European Economic Commission from the resources of the European Development Fund shall be accessed to meet the costs of the Rapid Response measures to contain and eradicate the RP incursion

The cost of controlling an emergency outbreak of Rinderpest will vary depending on the number of cattle involved in the outbreak, remoteness of the area and the infrastructure available at the time both centrally and at the local level. The Presence of susceptible wildlife and whether or not slaughtering of affected animals will be carried will have a bearing on the costs to be incurred.

In calculating the cost estimates for controlling an emergency outbreak of Rinderpest it is assumed that the GOT will contribute 50% to the control actions in terms of the local costs.

The local budget will be about 200,000,000 Tsh to be reserved in the National Emergency Fund in each financial year for access to the CVO in case of an emergency.

It is envisaged that vaccination crushes and roadblocks will be erected and slaughtering of affected cattle will be on a limited scale depending on the dimensions of the spread of the disease.

Presuming the cattle population at risk in an emergency outbreak will not exceed 250 000 the country will be entitled to apply for funds from the RAO of the AU/IBAR to contribute ECU 0.4 per animal, equivalent to ECU 100,000.

These funds together with the local resources will be used in the control of a detected Rinderpest outbreak and in the protection of the cattle population at risk. The measures put in place should result in total elimination of the outbreak in a verifiable manner.

The main areas of expenditure will be:

- Personnel, over and above the normal running costs;
- Capital equipment and consumable items including transport;
- Cost of Zoosanitary measures, including destruction and disposal of carcasses and movement controls;
- Cost of compensation to stock owners;
- Cost of emergency ring vaccination, including acquisition of thermo stable Rinderpest vaccine from the regional vaccine bank.

2.6 LEGAL PROVISIONS

These arrangements have legal backing from the Animal disease Ordinance Cap 156 Sections 14,15,16,17,18,21,22 and 23 that provides for the powers to Veterinary officers and actions applicable to infected areas. In addition the Minister responsible for Livestock Development can make a Regulation under Section 31 to enforce more on Emergency Disease response s

The Chief Veterinary Officer shall be responsible for the management and co-ordination of all emergency animal diseases control measures.

The Disaster Management Focal point Officer for the Veterinary Services will be delegated the day today responsibilities for Rinderpest emergency actions.

A state of readiness for a disease outbreak will be maintained and the main task is to direct and monitor the operations of district veterinary authorities in the high-risk areas.

Legal powers provided in the Animal Disease Ordinance (Cap 156) include:

- Compulsory notification of all suspected cases of Rinderpest,
- Authority to collect samples for laboratory diagnosis,
- Destruction of infected and contact animals,
- Payment of compensation,
- Disinfections procedures on infected premises,
- Authority to inspect and restrict animal movements including embargo on the infected zone,
- Emergency vaccination

The Animal Diseases Ordinance (Cap 156) and Veterinary Surgeons Act (Cap. 376) are under revision to enforce the legal provisions during an emergency situation and new emerging diseases. Local Government Authorities (LGA) subsidiary legislations (By-Laws) on livestock disease and movement control will compliment these principal legislations and in case of departures the later shall override..

2.7 PROVISIONS FOR EMERGENCY LABORATORY DIAGNOSIS

The Animal Disease Research institute (ADRI), which is the designated national Central Veterinary laboratory (CVL) shall keep and maintain basic diagnostic tests for RP. A national RP diagnostic laboratory needs ELISA Kits and Reader of which had been installed at ADRI and are being updated from time to time through local and external (IAEA, FAO/TCP/PACE).

ADRI Temeke works in collaboration with Veterinary Investigation Centres (VICs) that makes the focal diagnostic centres. There are six Veterinary Investigation Centres located in the 7 geographical zones (Map 3), which are at Arusha, Mwanza, Mpwapwa, Tabora, Iringa and Mtwara.

The VIC's are well resourced in terms of personnel to carry out detailed investigations on any disease outbreak and submit the right samples to the CVL Temeke for Laboratory diagnosis. In case of an outbreak the VICs can use antigen detection tests like AGID and other rapid pen side tests based on monoclonal antibodies, e.g. Clear view.

The DVS shall ensure through the national budget that VICs and ADRI as CVL are adequately funded to carryout diagnostic activities and are facilitated from the Emergency fund to follow up suspected rumours of RP.

VICs shall be responsible for collection and submission of samples to ADRI/CVL within the time limits and the later carry out the ELISA tests.

The virology department of ADRI/CVL-Temeke has a full diagnostic capability for using ELISA system, which has been validated jointly by FAO/IAEA for antigen detection and antibody assay. ADRI/CVL-Temeke and the VICs are skilled for large-scale nation wide serological surveillance for Rinderpest.

In all suspected outbreaks of Rinderpest, suitable specimens will be collected by the VICs and quickly submitted to the CVL-Temeke. The appropriate sample collection equipment will be stored in readiness at all the VICs.

The Central Veterinary Laboratory – Temeke will send representative samples of specimens to the World Reference Laboratory for Rinderpest confirmation and characterisation.

All materials likely to contain Rinderpest virus will have to be handled with extra care. Special vigilance and high security standards will be necessary when required to undertake biological diagnosis and or experimentation.

MAPS LOCATIONS OF ZONAL DIAGNOSTIC (VETERINARY INVESTIGATION) CENTRES IN TANZANIA

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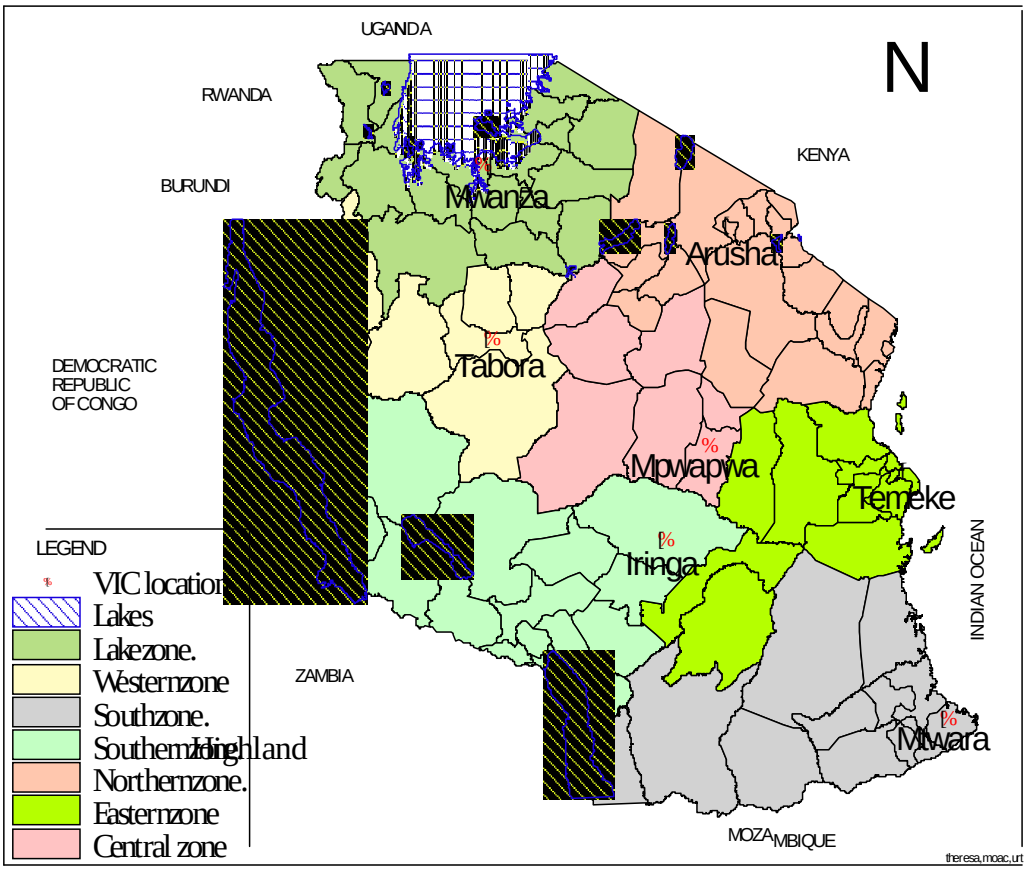
VETERINARY INVESTIGATION CENTRES LOCATIONS AND AREAS THEY SERVE IN TANZANIA



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2.8 KEY GOVERNMENT CONTACTS (At District, and Zonal level)

The local authorities in the district shall be contacted in the event of a Rinderpest emergency. The actual contact persons are the District Veterinary Officers and their respective District Executive Directors.

Designated key veterinary field personnel and government contacts are shown in Table 7. Contact personnel at the Veterinary Investigation Centres are shown in Table 8.

TABLE 7: DISTRICT CONTACT OFFICERS IN RP HIGH RISK AREAS (NORTH OF THE CRL)-VETERINARY FIELD SERVICES

Serial No.	Region	DISRTICTS	DVO/DLO	Contact Address and Telephone
1	Arusha	Arumeru	Dr. R. Nkini	P.O. 2416 Arusha
2		Arusha	Dr. Onditi	P.O. Box 3084 Arusha
3		Ngorongoro	Dr. Loomu	P.O. Box 33 Loliondo
4		Monduli	Dr. A Rwegasira	P.O. Box 17 Monduli
5		Karatu	Dr. Mwawado	P.O. Box 158 Karatu
6		Mbulu	Dr. Tigwela	P.O. Box 62 Mbulu
7		Hanang	Dr. Isack Khama	P.O. Box 66 Kateshi
8		Babati	Dr. Munuo	P.O. Box 11 Bbati
9		Kiteto	Dr. Kessy	P.O. Box 42, Kibaya, Kiteto
10		Simanjiro	Dr. Nalitolela	P.O. Box 14384 Arusha
11	Kilimanjaro	Hai	Dr. Ulick Edward	P.O. Box 10 HAI
12		Rombo	Dr. Tarimo	P.O. Box 2 Mkuu, Rombo
13		Same	Dr. Osanga	P.O. Box 6 Same
14		Mwanga	-	P.O. Box 98 Mwanga
15		Moshi	Dr. Marandu	P.O. Box 99 Moshi
16	Tanga	Tanga	Dr. Limo (Ag.)	P.O. Box 1474 Tanga
17		Lushoto	Dr. Mngulwi	P.O. Box 22 Lushoto
18		Muheza	Dr. Mwezimpya	P.O. Box Korogwe
19		Korogwe	Dr. Marawiti	P.O. Box 34 Korogwe
20		Handeni	Dr. Mlinga	P.O. Box 200 Handeni
21	Mara	Serengeti	Safari James (Acting)	P.O. Box 176 Serengeti Tel. 028-2621426
22		Musoma	Thomas Assay	Kilimo/Mifugo Wilaya P.O. Box 921 Musoma Tel. 028-2620109

23		Tarime	Leonard Moses Masale	P.O. Box 16 Tarime Tel. 028-2690198
24		Bunda	Ndeanabo D.L.	P.O. Box 126 Bunda Tel. No. 028-2621197
25	Mwanza	Ukerewe	Mr. J. Katoto	P.O. Box 84 Nansio
26		Sengerema	C. Sagenge	P.O. Box 122, Sengerema
27		Geita	G.P. Mgoha	P.O. Box 83, Geita
28		Mwanza	Dr. Sefanida Mbululo	P.O. Box 1333 Mwanza
29		Misungwi	Dr. Kagaruki	P.O. Box 15, Misungwi
30		Kwimba	S.G.M. Kibisa	P.O. Box 26, Kwimba
31		Magu	Dr. J. Mzee	P.O. Box 2, Magu, Mwanza
32	Shinyanga	Bariadi	Dr. P. Mtiba	P.O. Box 67 Bariadi Tel 6 (TTCL)
33		Meatu	Dr. F. Bakilehi	P.O. Box 57 Mwanuhuzi, Meatu
34		Maswa	Dr. G. Mahaza	P.O. Box 5, Maswa
35		Kahama	A.S. Mahunyemba	P.O. Box 50 Kahama
36		Shinyanga	Dr. F. Ngotonie	P.O. Box 113, Shinyanga
37		Bukombe	H. S. Kadigi	P.O. Box 5, Bukombe
38	Kigoma	Kibondo	Julius Chalya	P.O. Box 9, Kibondo Tel. 028-28020287
39		Kigoma	Deograsias Livakule	P.O. Box 64, Kigoma Tel. No. 028-2802268/62
40		Kasulu	S. Lyaruu	P.O. Box 63, Kasulu Tel. No. 028-281043
41	Tabora	Tabora	Dr. Malya	P.O. Box 174, Tabora Tel: 026-2604692

42		Sikonge	Katwanga	P.O. Box 70, Sikonge Tel No: 18 (TTCL)
43		Urambo	Bwana Nachundu	P.O. Box 261, Urambo Tel: No. 43 (TTCL)
44		Nzega	Messo	P.O. Box 3 Nzega Tel: 026-2692096/2692349
45		Igunga	Dr. Tongora	P.O. Box 10, Igunga, Tel: DED 026-265-0019
46	Dodoma	Dodoma	Dr.T.L.K. Mwachambi	P.O. Box 832, DODOMA Tel: 023-2324758 Fax: 23203230
47		Mpwapwa	Dr. R. Urassa	P.O. Box 27, Kongwa Tel. 023 2320122 Tel. 023 2320844 Fax: 023-2320122
48		Kongwa	Dr. F. Kassanga	P.O. Box 125, Kongwa Tel: No. 023 2321137 Fax: 023 2321137 E-mail asps.kongwa@cots.net.com
49		Kondoa	Dr. Antallo	P.O. Box 832, DODOMA Tel: 023-2324758 Fax: 23203230
50	Singida	Singida	Dr. Karigho	Box 201 Singida Tel 026 2502179
51		Iramba	Dr. Magagula	Box 155 Iramba Tel 026 2502253
52		Manyoni	Dr. Mtalo	Box 60 Manyoni Tel 026 2502150
53	Morogoro	Kilosa	Mr Macha	Box 164 Kilosa Tel 023 2623027

TABLE 8: NATIONAL VETERINARY LABORATORY SYSTEM

Diagnostic Centre	Name of the Officer In-charge	Districts covered	Address	ephone/email
CLV Temeke	Dr. P.A. Mkonyi	Whole Country	P.O. Box 9254 Dar Es Salaam	022-2863104 cvltemeke@twiga.com
VIC Arusha	Dr. Mollel	Northern Zone	P.O. Box 1068 Arusha	027-250-3566 vic-ar@cybernet.co.tz
VIC Mwanza	Dr. Kondela	Lake Zone	P.O. Box 129 Mwanza	026-2500675 vic-mz@africaonline.co.tz
VIC Mpwapwa	Dr. Mgwira	Central Zone	P.O. Box 290 Mpwapwa	(Radio call - DRD office) -
VIC Iringa	Dr. B.J. Mtei	S/Highlands	P.O. Box 290 Iringa	026-2702154 vic-iringa@twiga.com
VIC Tabora	Dr. Mukangi	Western Zone	P.O. Box 73 Tabora	0262604205 vic-tb@twiga.com
VIC Mtwara	Dr. Mwamhehe	Southern Zone	P.O. Box 1186 Mtwara	023-2333836 NARI@RAHA.COM
VIC Temeke	Dr. Kapaga	Eastern Zone	P.O. Box 9254, Dar Es Salaam	022-2864394 cvltemeke@twiga.com

EPIDEMIOLOGY UNIT

Staff Disposition

1. Dr.M.M.Bahari-Disaster Management Focal Point
2. Dr. F.F.Sudi -Epidemiologist
3. Mr. M. Y. Rashid-Data Entry

MINISTRY OF FINANCE

DNAO's Name – Mr. Daud Msangi

2.9 KEY NON-GOVERNMENT CONTACTS

Key non-governmental livestock organisations shall also be contacted in the event of Rinderpest emergency. These are The Tanzanian Veterinary Association (TVA), Private Veterinary Practices (PVPs), and Livestock Member Associations (LMAs/CBOs).

The actual contact people are:

TANZANIA VETERINARY ASSOCIATION

Name and Address of the National Executive Committee

i	Prof. Kambarage	TVA Chairman
ii	Dr. P Z. Njau	TVA Secretary
iii	Dr. Mtui	TVA Treasurer

KEY PRIVATE PRACTITIONERS

Key Private Veterinary Practises

i Vet care, (Dr.Sinare in DSM)

ii Rhonheam (Dr.Mbwile)

iii KV Animal Health Services (Dr.Prof Kessy –SUA/Morogoro)

KEY LIVESTOCK MEMBER ASSOCIATIONS (LMAs)
Shall be identified and notified by the respective districts)

KEY LIVESTOCK NON-GOVERNMENTAL ORGANISATIONS

i HPI –Tanzania (Hdqts Arusha)
ii Vetaid – Arusha (Hdqts Arusha)
iii Austroproject (Hdqts Dar-es-Salaam)

2.10 MATERIALS AND EQUIPMENT

Emergency Equipment Store will be maintained at the MWLD HQ and at the VICs

Place	Emergency Supplies in Place
MWLD HQ	Cold chain, Vaccine, Vac. Equipment
Arusha VIC	Blood sampling equipment, cold chain
Mtwara VIC	Blood sampling equipment, cold chain
Iringa VIC	Blood sampling equipment, cold chain
Mwanza VIC	Blood sampling equipment, cold chain
Mpwapwa VIC	Blood sampling equipment, cold chain
Tabora VIC	Blood sampling equipment, cold chain

2.11 PREPARATIONS FOR OBTAINING VACCINE

The success in containing a Rinderpest outbreak fast depends on how fast the vaccines for immediate vaccination of all susceptible cattle can be obtained. There ought to be preparations and agreement in place to supply vaccines and needed equipments within 48 hours from the time a requested for them are made.

This provision has been made through joint regional efforts whereof AU/IBAR maintains a Vaccine bank at the Botswana Vaccine Institute (BVI) in Gabarone. Tanzania had surrendered 250,000 RP vaccine doses that were bought through an FAO/TCP for upkeep by the AU/IBAR and thus expects to access the vaccine bank within the agreed time limits.

Further efforts will be made to secure more vaccines doses depending on the need determined by the population at risk through emergency arrangements with local suppliers.

The Treasury and TRA through the Disaster Management Unit have provisions to waive bureaucratic procedures and taxes for emergency imports. This provision shall be utilised to make sure the vaccines and logistic equipments are exempted from taxes and custom cleared fast

There will be rapid access to the supply of quality assured vaccine from the Vaccine Bank and the manufacturers in Botswana through AU-IBAR whose contact addresses are: -

AU/IBAR/PACE Co-ordination Unit	Botswana Vaccine Institute
P. O. Box 30786	Private Bag 0031,
Nairobi Kenya, Telephone: (254) 2 338544	Gabarone; Botswana Telephone: (267) 312711
Fax: (254) 2 332046	Fax: (267) 356798
E-mail: pace@oau-ibar.org	

2.12 CONTACTS WITH INTERNATIONAL ORGANISATIONS

The DVS and ADRI Director shall maintain close contacts through exchange of information, reports telephone and e-mail contacts within the regional SADC, EAC, and AU-IBAR. Close follow up and state of alertness shall be made whenever there are abnormal happenings suggestive of RP in neighbouring countries. Cross border meetings and joint surveillance activities in both livestock and wildlife between EAC member states shall be maintained and facilitated by the DVS government budget. PACE (TZ) shall initiate and foster these contacts during its project life.

ADRI shall establish links with Muguga regional reference laboratory for RP and work out payment modalities on the tests that the later shall be undertaking.

PACE/AU-IBAR is working on the operationalisation of this set up.

Contacts to the following International Organisations shall be nurtutred.

AU/IBAR/PACE

- Director of AU-IBAR cum RAO Dr. Jotham Musiime
- AU/IBAR/PACE CoordinatorDr. Rene Bessin
- Regional PACE Epidemiologist Gavin Thomson

SADC

- Livestock Sector Co-ordinator – Dr. Boneventura J.Mtei

TABLE 9 DIRECTORS OF VETERINARY SERVICES OF NEIGHBOURING COUNTRIES

COUNTRY	DESCRIPTION OF DVS	ADDRESS	TELEPHONE	E-MAIL
Kenya	Director of Veterinary Services	Department of Veterinary Services P.O. Box Kabete, Nairobi KENYA	254-2-631390/1/57 Fax 254-2-631273	cvfovetlabs@kenyweb.com
Uganda	Commissioner Animal Diseases Control	Department of Livestock Health and Entomology P.O.Box 513 Entebbe Uganda	256-41-320166/320627 Fax-256-41-320428	psamaaif@infocom.co.ug
Zambia	Director of Veterinary Services	P.O. Box 5006 LUSAKA, ZAMBIA	Tel. +260-97-800638 +260-1236283 +260-1252199(H) Fax: 260-1252608	naleic@coppernet.zm
Malawi	Director of Veterinary Services	P.O. Box 2096 LILONGWE MALAWI	Tel. No.+265-751349 Fax: +265-751349	agric-dahi@sdnp.org.mw
Mozambique	Director of Veterinary Services	P.O. Box 1406 MAPUTO MOZAMBIQUE	258-1-460080 258-1-460494 Fax: 258-1-460479	uevdinap@teledata.mz

EUROPEAN HIGH COMMISSION IN TANZANIA				
Designation	Name of The Office	Country	Address	Telephone/E-mail/Fax
Head of Delegation	Mr. William Hanna	Tanzania	P.O Box 9514, DAR ES SALAAM	Tel: 022-2117473-76 Fax: 2113277 E-mail: malto@deltza.cec.eu.int
Rural Development Adviser	Mrs. Maria Paris-Ketting	Tanzania	P.O Box 9514, DAR ES SALAAM	Tel: 022-2117473-76 Fax: 2113277 E-mail: malto@deltza.cec.eu.int
EUROPEAN COMMISSION IN BRUSSELS				
Livestock Sector Adviser	Dr. Alain Vandersmissen	Brussels	AIDCO/C/5 B-1049 Brucells	Tel: 32-2-299-0766 Fax: 32-2-299-2901 E-mail: alain.vandersmissen@cec.au.int
FAO ROME				
Livestock EMPRESS	Dr. Mark Rweyemamu	FAO –ROME	POUCH	Tel: 000390657051 Mark.rweyemamu@fao.org
Livestock Empres	Dr. Y. Cheneu	FAO-ROME	POUCH	Tel: 000390657051 Yves.cheneau@fao.org
	Dr. J. Lubroth	FAO-ROME	POUCH	Tel: 000390657051
FAO REPRESENTATIVE IN TANZANIA				
FAO Programme Officer	Mr. James Yonazi	FAO - TZ	P.O. Box 2 FAO - TANZANIA	Tel. 022-2113070 James.yonazi@FIELD.FAO.ORG

IAEA VIENNA	Martin H. Jeggo	FAO/IAEA	P.O. Box 100, A-1400 VIENNA AUSTRIA	Tel: +43 1 2600 Fax: +43 1 26007 E-mail: M.H.Jeggo@iaea.org
	R.Gieger	FAO/IAEA	P.O. Box 100, A-1400 VIENNA AUSTRIA	Tel: +43 1 2600 Fax: +43 1 26007 R.Geiger@iaea.org

PART 3

3 CONTIGENCE PLAN AND ITS ACTION

A Contingence plan being a set up of activities, organisation and funding arrangements of a probable event needing immediate action is hereunder put forward.

3.1 RESPONSIBILITIES OF THE PUBLIC AND VETERINARY FIELD STAFF ON SUSPICION OF RINDERPEST

It is a legal requirement that every body suspecting the presence of Rinderpest to report such suspicion without delay to a member of the state veterinary service. Normally the first contact will be with the Livestock extension personnel who should report to the District Veterinary Officer. The report, action taken, and the outcome of the DVOs initial investigation will be recorded as a “RP rumour” at the district veterinary office. If there are grounds to support the suspicion of Rinderpest, the veterinary officer will immediately have to report to the Officer In-charge of the nearest Veterinary Investigation Centre, the Regional Livestock Sector Adviser and the Chief Veterinary Officer by the quickest possible means.

3.2 RESPONSIBILITIES OF THE CHIEF VETERINARY OFFICER ON RECEIVING A REPORT OF AN EVENT SUSPICIOUS OF RINDERPEST

Upon receiving information of suspected Rinderpest outbreak, the Chief Veterinary Officer will mobilise the Rinderpest Emergency Action.

3.2.1 Alert phase

The Expert Team will be fielded not latter than 36 hours from the time the information was received by the CVO. This team will visit the area and supply diagnostic specimens within 60 hours. RP Outbreak Investigation Report must be produced not latter than 72 hours from the time the CVO was served with notice of the outbreak from the field.

3.2.2 Operational phase

The Disaster Management Focal Point Officer will be responsible for the day to-day administration of the National Rinderpest Emergency activities under the National Animal Disease Control Centre (NADCC). A state of readiness will be kept on Rinderpest including convening the National Rinderpest Emergency Committee meetings and to direct and monitor operations especially in the high-risk districts.

The main activities in case of an incursion of Rinderpest will include but not necessarily limited to:-

- Activation of the Contingency Measures to be implemented managed and coordinated by the National Animal Disease Control Centre (NADCC) as the Central Command Centre and the Regional or District Animal Disease Control Centre as the Local Command Post (See Figure 5)
- Definition of control measures;
- Deployment of human and physical resources to the affected districts;
- Provide information to AU/IBAR, the OIE, FAO, other International Agencies, neighbouring countries and the mass media;
- Acquisition of vaccine and releasing it for use;
- Co-ordinate activities of the VICs, CVL-Temeke and the Epidemiology Unit to be able to identify the disease zones as stipulated in this document;

The NADCC is a permanent unit under the Animal Health Services Assistant Director within the Epidemiology Section. It shall have a staffing level of up to 12 and have the following responsibilities in emergency disease outbreak response:-

- Implementing disease control policies decided by the DVS/CVO and the NEADC/CCEAD.
- Directing, managing and monitoring disease control operations of the Local /District/Regional animal Disease Control Centres.
- Maintenance of up-to date list of available personnel and other resources.
- Deployment of staff and other resources to the local centres.
- Ordering and dispensing of vaccines and other essential supplies.
- Preparation of reports.
- General and Financial administration

In order to implement a Rinderpest Emergency Plan, especially in combating an outbreak, it will be necessary to mobilise local resources at the district level particularly in the control and surveillance zones. The District Veterinary Offices will assume the responsibility of making sure that appropriate control measures are effectively managed. The District Veterinary Officer will be in-charge of a task force and will be responsible to the National Co-ordinator.

The DVO will have the authority to:-

- Ø Designate affected villages
- Ø Deploy the necessary staff and equipment.
- Ø Evaluate and arrange for slaughter and or disposal of infected stock;
- Ø Advice on the delineation of zones and imposition of embargo in the infected zone.

- Ø Liase with the police and other law enforcers on restriction of livestock movements.

Affected districts will be facilitated with physical and financial resources to carry out Rinderpest emergency activities. They will also be equipped with transport and a telephone through the TTCL to be able to communicate with the Zonal Centres (VICs) and the DLD. The districts will be required to have a recording system preferably computerised to include chronological dairy of the events of the outbreak and relevant maps.

Key persons and institutions in the district that should be contacted in the event of an outbreak include:

- ♦ Local administrators including members of parliament
- ♦ Police
- ♦ Judiciary
- ♦ Livestock traders
- ♦ Private veterinarians and Community Animal Health Workers
- ♦ Livestock input suppliers
- ♦ Mass media and press.

3.2.3 Training

Tanzania has well-trained veterinary personnel capable of diagnosing and dealing with Rinderpest. In the course of the Rinderpest eradication process, there will be regular in-service training of professional and Para professional staff who in one way or the other are engaged in Rinderpest eradication.

Members of the Rinderpest Expert Team and other experts on the subject will conduct training.
The training will include: -

- Ø Diagnosis of Rinderpest;
- Ø Diseases surveillance and reporting;
- Ø Preventive and control measures against Rinderpest;
- Ø Record keeping including rumours register;
- Ø Notification, public awareness and communication support;

Regular training workshops at national, zonal and district levels will maintain competence of staff in these subjects. Key members of the Veterinary Service will be given the opportunity to visit places where Animal Disease Emergency Operations are being practiced as part of their training.

3.2.4 Communication Support

The State Veterinary services in Tanzania rely on livestock owners, private veterinarians and paravets attending animals to report occurrence of animal disease including Rinderpest. Prompt and accurate reporting can only be achieved if livestock extension personnel and the stockowners are aware of the danger of Rinderpest and are conversant with the clinical signs of the disease. To this end, awareness of the disease will be maintained both within the veterinary profession and in the agricultural community.

The veterinary profession as a whole will be provided with information that will cover current notification and control procedures and epidemiological situation within the country and elsewhere. Refresher courses will be arranged for veterinarians to include new developments in the surveillance, prevention and control of priority diseases in the country.

For the agricultural community, awareness campaigns will be targeted at livestock keepers and the non-professional personnel who have contacts with herds e.g. livestock traders, input suppliers and other agricultural extension staff. Messages to be delivered will emphasize on the importance of Rinderpest, clinical manifestation, the need for prompt reporting and availability of compensatory funds for slaughtering sick animals where applicable.

The Directorate of Veterinary Services together with other Directorates in the Livestock Development Sector envisages establishing a strong Livestock Information System that will encompass a Communication Unit. Already staff have been identified and some deployed and equipment like computers have been provided to it. The Communication Unit under PACE has lodged a radio programme in the State radio being aired once per week. In addition all VICs have Internet and email connections. Radio call facilities that were established under PARC are being repaired. Thus there is already in place a quick communication system

3.3 ACTION PLAN FOR RINDERPEST PREPAREDNESS PLAN

1 Convene a Rinderpest Task Force meeting

2 Expert team to investigate and confirm on the presence of the disease

3 Quarantine measures

4 National Animal Disease Emergency Committee meeting.

5 Zonation (Control/infected, Surveillance and Clean area)

6 Notification to neighbouring countries and International Organizations.

7 Mobilization of resources (manpower, material and financial)

8 Field activities

- Mass sensitisation and awareness campaigns

- Training workshops for Field and Laboratory staff
- Pre-vaccination sero sampling
- Control measures (Isolation, Slaughter and Vaccination)
- Post vaccination sero-surveillance
- Active surveillance and reporting
- Risk assessment and analysis

3.4 TERM OF REFERENCE OF THE NATIONAL ANIMAL DISEASE EMERGENCY COMMITTEE (NADEC)

1. To advice and formulate strategies for the control of outbreaks of contagious diseases of animals including wildlife
2. To plan and approve investigations for emergency disease outbreaks by various methods such as carrying out clinical examinations collecting samples for laboratory examinations, and interviewing livestock owners including participation of wildlife authorities.
3. To coordinate surveys for emerging diseases
4. To scrutinize relevant emergency disease reports for submission to MWLD authorities, International organizations. and neighbouring countries
5. To solicit appropriate sources of funding
6. To devise animal disease control strategies with the aim of either containing outbreaks or stamping out.
7. To inform all parties involved including neighbouring countries and international organizations of any relevant animal disease developments in the country.

3.5 BUDGET FOR RINDERPEST EMERGENCY PREPAREDNESS PLAN

TABLE 10-BUDGET ESTIMATES FOR THE CONTINGENCE PLAN

ITEM	NUMBER	UNIT COST	TOTAL
Rinderpest Task Force meeting			0
Transport	16	300,000	4,800,000
DSA (3 days)	48	50,000	2,400,000
Secretariat costs	Lump sum		2,000,000
			9,200,000
Expert team			0
Transport - fuel	3,000	550	1,650,000
Vehicle maintenance	0.4		660,000

DSA (6 people for 2 wks)	84	30,000	2,520,000
Equipment and sampling	Lump sum		2,000,000
Early Response Measures Costs (Sub-total of the above			16,030,000
Quarantine measures			0
Tents and accessories	40	250,000	10,000,000
Kerosene stoves	80	20,000	1,600,000
Kerosene	1,000	400	400,000
Motorcycle	7	2,500,000	17,500,000
Inspection kits	40	50,000	2,000,000
DSA (5 people)	2,100	15,000	31,500,000
Communication facilities			0
Radio call	7	1,500,000	10,500,000
Solar units	7	1,000,000	7,000,000
Fittings and Installation	7	1,250,000	8,750,000
			0
National Animal Disease Emergency Committee meeting			0
DSA	20	80,000	1,600,000
Travelling expenses	20	100,000	2,000,000
Secretariat cost	Lump sum		2,000,000
			0
Mass sensitisation and awareness campaigns			0
Posters,	20,000	500	10,000,000
Leaflets	100,000	100	10,000,000
Public meeting	100	100,000	10,000,000
Preparation of radio programme	120	20,000	2,400,000
Training workshops for Field and Laboratory staff			0
Rer. persons 4person x 7days x 2VIC	56	50,000	2,800,000
Field staffs 30 x 5 days	150	20,000	3,000,000
Training materials	30	5,000	150,000

Pre-vaccination sero sampling			0	
DSA (4 people x 7 days)	28	15,000	420,000	
Fuel (7 days)	350	550	192,500	
Vehicle maintenance	0.4		77,000	
Control measures (Isolation, Slaughter and Vaccination)			0	
Isolation (DSA - 14days)	5	15,000	1,050,000	
Slaughter and dispose (cattle)	500	5,000	2,500,000	
Compensation of slaughtered cattle*	500*	50,000	25,000,000	
Vaccinations	1,304,246	200	260,849,200	
*It is assumed that a point outbreak shall be detected early and all the animals in that village or within a radius of 10 km of the infected herd must be slaughtered with compensation and 500 is taken as the average cattle population in a village. In practice this is unlikely and therefore ring mass vaccinations shall be adopted				0
Post vaccination sero-monitoring			0	
DSA (4 people x 7 days)	28	15,000	420,000	
Fuel (7 days)	350	550	192,500	
Vehicle maintenance	0.4		77,000	
Active surveillance and reporting	150	15,000	2,250,000	
Strengthening of VIC's			0	
Laboratory Consumables	Lump sum		5,000,000	
Operational costs for 2 VICs and ADRI			10,000,000.00	
Risk Analysis and Assessment (mm)	12	1,200,000.00	14,400,000.00	
SUB_TOTAL			471,658,200	
Contingency (5%)			23,582,910	
GRAND TOTAL			495,241,110	
			=500 million Tsh	
			=0.5 million US$	

Source of Funds: Animal Diseases Emergency Fund (established in 2002); 20 Million Treasury via Disaster Management Disbursement 280 Million and AU/IBAR/EU Emergency fund for RP 200 Million. The later is available upon showing commitment and proof of disbursement of the preceding local funds.

Estimated Cattle Population at Risk				
Tanga Region/Districts	Numbers	At high Risk	Remarks for the Risk assessment	
Tanga	17,521		Far from Mkomazi	
Handeni	203,831		Far from Mkomazi	
Muheza	39,178	39,178	Close to Mkomazi	
Lushoto	90,000	90,000	Close to Mkomazi	
Kilimanjaro Region/Districts				
Same	178266	178266	Close to Mkomazi	
Mwanga	63921	63921	Close to Mkomazi	
Rombo	51688	51688	Close to Tsavo-Mkomazi	
Hai	107115		Close to Amboseli/Kilimanjaro Wildlife areas	
Moshi Rural	137369		Buffered by Hai and Rombo	
Arusha Region/Districts				
Arumeru	256725		Far from the Kenyan border	
Arusha Rural	30315		Far from the Kenyan border	
Monduli	325050	325050	Along Kenyan border	
Simanjiro	313299		Far from the Kenyan border	

Ngorongoro	376903	376903	Along Kenyan border	
Kiteto	227497		Far from the Kenyan border	
Mara Region/Districts				
Serengeti	197607	197607	Along Kenyan border	
Tarime	307694	307694	Along Kenyan border	
Musoma Mwanza Region/Districts	370377		Far from the Kenyan border	
Magu Shinyanga Region/Districts	200000		Far from the Kenyan border	
Bariadi TOTAL	359750 3,854,106	 1,630,307	Far from the Kenyan border	
NOTE: In case of RP incursion, it is assumed that 80% of cattle at high risk must be vaccinated.				

RINDERPEST

Preamble: For diagnostic tests and vaccine standards, reference should be Made to the Manual (A4).

Article 2.1.4.1.

For the purposes of this Code, the incubation period for Rinderpest shall be 21 days.

Article 2.1.4.2.

For the purposes of this Code:

Rinderpest: free country

A country may be considered free from Rinderpest when it has been shown that Rinderpest has not been present for at least the past three years.

This period shall be six months after the occurrence of the last case for countries in which a stamping-out policy is practised, with or without vaccination against Rinderpest.

Rinderpest: infected zone

A Rinderpest infected zone shall be considered as such until at least 21 days have elapsed after the last case has been reported and following the completion of a stamping-out policy and disinfection procedures, or six months after the clinical recovery or death of the last affected animal if a stamping-out policy is not practised.

Rinderpest: free zone

An area may be considered to be a Rinderpest free zone if it can be ascertained that the disease has not been present for at least the past three years and if the following requirements are met:

1) The zone shall be delineated by natural barriers or by; fencing. Access to the zone shall be guarded and its boundaries placed under permanent surveillance in order to prevent any illegal movement of animals.

2) The free zone shall be large enough to provide exclusive supply for an area abattoir. It shall be bounded by a buffer zone of at least ten km width. Animals present in the free zone at the time of its formation shall be vaccinated and marked with identification approved for the zone.

3) Entry of animals into the free zone shall be conditional on:

   a) Vaccination using a vaccine complying with the OIE standards immediately after entry in the buffer zone;

   b) Isolation in the buffer zone for at least 21 days under veterinary supervision;

   c) Marking these animals with the approved mark before release into the free zone.

4) Animals born in the free zone should be routinely vaccinated and marked.

5) If Rinderpest occurs in the free zone the following arrangements shall be provided for:

   a) Movement restrictions will be imposed in the infected zone; animals can only be moved to the abattoir;

   b) All export of meat shall be stopped immediately;

   c) Immediate notification of the outbreak by telex, telegram or fax shall be made to the OIE and any country, which has recently imported animals from the zone;

   d) Virus isolation and the source of the infection thoroughly investigated shall confirm the Rinderpest outbreak;

   e) Movement restrictions may be lifted and export of meat resumed if:

      - thirty days have elapsed after the carrying out of a stamping-out policy, or
      - If a stamping-out policy is not practised;
      - six months have elapsed after the occurrence of the last case and all animals within the infected zone have been revaccinated.

Article 2.1.4.3.

Veterinary Administrations of Rinderpest free countries may prohibit importation or transit through their territory, directly or indirectly, from countries considered infected with Rinderpest of:

1) Domestic and wild ruminants and pigs;
2) Semen of ruminants and pigs;
3) Embryos/ova of ruminants and pigs:
4) Fresh meat of domestic and wild ruminants and pigs;
5) Meat products of domestic and wild ruminants and pigs which have not been processed to ensure the destruction of Rinderpest virus;
6) Products of animal origin (from ruminants and pigs) destined for use in animal feeding or for industrial use which have not been processed to ensure the destruction of Rinderpest virus;
7) Products of animal origin (from ruminants and pigs) destined for pharmaceutical use, which have not been processed to ensure the destruction of Rinderpest virus;
8) Pathological material and biological products (from ruminants and pigs), which have not been processed to ensure the destruction of Rinderpest virus.

Article 2.1.4.4

When importing from Rinderpest free countries, Veterinary Administrations should require: for domestic ruminants and pigs

The presentation of an international animal health certificate attesting that the animals:

1) Showed no clinical sign of Rinderpest on the day of shipment;
2) Were kept in a Rinderpest free country since birth or for at least the past 21 days.

Article 2.1.4.5.

When importing from Rinderpest free countries, Veterinary Administrations should require:

for wild ruminants and pigs

the presentation of an international animal health certificate attesting that the animals:

1) showed no clinical sign of Rinderpest on the day of shipment;

2) come from a Rinderpest free country;

if the country of origin has a common border with a country considered infected with Rinderpest:

3) were kept in a quarantine station for the 21 days prior to shipment.

Article 2.1.4.6.

When importing from countries considered infected with Rinderpest, Veterinary Administrations should require:

for domestic ruminants and pigs

the presentation of an international animal health certificate attesting that the animals:

1) showed no clinical sign of Rinderpest on the day of shipment;

2) were kept since birth, or for the past 21 days, in an establishment where no case of Rinderpest was officially reported during that period, and that the establishment of origin is not situated in a Rinderpest infected zone; and/or

3) were kept in a quarantine station for the 21 days prior to shipment;

4) have not been vaccinated against Rinderpest; or

5) were vaccinated using a vaccine complying with the OIE standards:

   a) not less than 15 days and not more than four months prior to shipment in the case of animals for breeding or rearing;

   b) not less than 15 days and not more than 12 months prior to shipment in the case of animals for slaughter.

Vaccination may be considered whilst animals are in quarantine before shipment or in transit, if the use of vaccine is prohibited in the exporting country.

Article 2.1.4.7.

When importing from countries considered infected with Rinderpest, Veterinary Administrations should require:

for wild ruminants and pigs

the presentation of an international animal health certificate attesting that the animals:

1) showed no clinical sign of Rinderpest on the day of shipment;
2) were kept in a quarantine station for the 21 days prior to shipment;
3) have not been vaccinated against Rinderpest; or
4) were vaccinated, not less than 15 days and not more than four months prior to shipment, using a vaccine complying with the OIE standards.

Vaccination may be considered whilst animals are in quarantine before shipment or in transit, if the use of vaccine is prohibited in the exporting country.

Article 2.1.4.8.

When importing from Rinderpest free countries, Veterinary Administrations should require:

for semen of domestic ruminants and pigs

the presentation of an international animal health certificate attesting that:

1) the donor animals showed no clinical sign of Rinderpest on the day of collection and for the following 21 days;
2) the animals were kept in a Rinderpest free country for not less than 21 days prior to collection;
3) the semen was collected, processed and stored strictly in accordance with Appendices 4.2.1.1., or 4.2.2.1. as relevant.

Article 2.1.4.9.

When importing from countries considered infected with Rinderpest, Veterinary Administrations should require:

for semen of domestic ruminants and pigs

the presentation of an international animal health certificate attesting that:

1) the donor animals showed no clinical sign of Rinderpest on the day of collection and for the following 21 days;

2) the animals were kept in a Rinderpest free country for not less than 21 days prior to collection;

3) the semen was collected, processed and stored strictly in accordance with Appendices 4.2.1.1., 4.2.1.2. or 4.2.2.1. as relevant.

Article 2.1.4.9.

When importing from countries considered infected with Rinderpest, Veterinary Administrations should require:

for semen of domestic ruminants and pigs

the presentation of an international animal health certificate attesting that:

1) the donor animals showed no clinical sign of Rinderpest on the day of collection and for the following 21 days;

2) the animals were kept in the exporting country, for the 21 days prior to collection, in an establishment or AI centre where no case of Rinderpest was officially reported during that period, and that the establishment or AI centre is not situated in a Rinderpest infected-zone;

3) the animals were:

   a) not vaccinated against Rinderpest; or

   b) vaccinated using a vaccine complying with the standards in the Manual;

4) the semen was collected, processed and stored strictly in accordance with Appendix 4.2.1.1., 4.2.1.2. or 4.2.2.1. as relevant.

Article 2.1.4.10.

When importing from Rinderpest free countries, Veterinary Administrations should require:

for embryos/ova of domestic ruminants

The presentation of an international animal health certificate attesting that the:

1) donor females were kept in the same herd in a Rinderpest free country for at least the 30 days prior to departure to the collection unit;

2) donor females and all other animals in the herd of origin showed no clinical sign of Rinderpest during the 24 hours prior to departure to the collection unit and for the following 30 days;

3) donor females were fertilised with semen meeting the requirements provided in Article 2.1.4.8.;

4) collection unit remained free from Rinderpest during the 30 days following collection.

Article 2.1.4.11.

When importing from countries considered infected with Rinderpest, Veterinary Administrations should require:

for embryos/ova of domestic ruminants

the presentation of an international animal health certificate attesting that the donor females:

1) and all other animals in the herd of origin showed no clinical sign of Rinderpest during the 24 hours prior to departure to the collection unit and for the following 30 days;

2) were isolated in the establishment of origin for the 30 days prior to departure to the collection unit and were subjected to the sero-neutralisation test for Rinderpest with negative results;

3) have not been vaccinated against Rinderpest; or

4) were vaccinated using a vaccine complying with the OIE standards;

5) were transported to the collection unit without passing through a Rinderpest infected zone, and that the collection unit remained free from Rinderpest during the 30 days following collection.

Article 2.1.4.12.

When importing from Rinderpest free countries, Veterinary Administrations should require:

for fresh meat or meat products of domestic ruminants and pigs

the presentation of an international sanitary certificate attesting that the entire consignment comes from animals:

1) which have been kept in the country since birth, or have been imported from a Rinderpest free country;
2) slaughtered in an abattoir and found to be healthy before and after slaughter.
3)

Article 2.1.4.13.

When importing from countries considered infected with Rinderpest, Veterinary Administrations should require:

for meat products of domestic ruminants and pigs

the presentation of an international sanitary certificate attesting that the:

1) entire consignment of meat products comes from animals slaughtered in an abattoir and found to be healthy before and after slaughter;
2) meat products have been processed to ensure the destruction of Rinderpest virus;
3) necessary precautions were taken after processing to avoid contact of the meat with any source of Rinderpest virus.

Article 2.1.4.14.

When importing from Rinderpest free countries, Veterinary Administrations should require:

for products of animal origin (from ruminants and pigs) destined for use in animal feeding or for industrial use

the presentation of an international sanitary certificate attesting that these products come from animals which have been kept in a Rinderpest free country since birth or for at least the past 21 days.

Article 2.1.4.15.

When importing from Rinderpest free countries, Veterinary Administrations should require:

for products of animal origin (from ruminants and pigs) destined for pharmaceutical use

the presentation of an international sanitary certificate attesting that these products come from animals:

1) which have been kept in a Rinderpest free country since birth or for at least the past 21 days;
2) slaughtered in an abattoir and found to be healthy before and after slaughter.

Article 2.1.4.16.

When importing from countries considered infected with Rinderpest, Veterinary Administrations should require:

for products of animal origin (from ruminants and pigs) destined for use in animal feeding or for industrial use

meal and flour from blood, meat, defatted bones, hooves, claws and horns

the presentation of an international sanitary certificate attesting that these products have been processed using heat treatment to ensure the destruction of Rinderpest virus;

hooves, claws, bones and horns, hunting trophies and preparations destined for museums

the presentation of an international sanitary certificate attesting that these products:

1) were completely dried and had no trace on them of skin, flesh or tendon; and/or

2) have been adequately disinfected;

wool, coarse hair, bristles and other hair

the presentation of an international sanitary certificate attesting that these products:

1) come from animals which have not been kept in a Rinderpest infected zone; or

2) have been adequately disinfected.

Article 2.1.4.17.

When importing from countries considered infected with Rinderpest, Veterinary Administrations should require:

for products of animal origin (from ruminants and pigs) destined for pharmaceutical use

the presentation of an international sanitary certificate attesting that these products:

1) have been processed to ensure the destruction of Rinderpest virus; or

2) come from animals which have not been kept in a Rinderpest infected zone;

3) come from animals slaughtered in an abattoir and found to be healthy before and after slaughter.

Annex 1.2: RECOMMENDED STANDARD FOR RINDERPEST SURVEILLANCE

1. Purposes of the document

The document describes the criteria:

a) To prove that a country or a zone is free from Rinderpest, and

b) For the declaration of freedom from Rinderpest

2. Definition and purposes of surveillance

Disease surveillance is necessary to provide evidence that a country or region is free from a disease or an infection.

Disease surveillance should be implemented by both:

a) A system of reporting of any signs of disease activity that come to the notice of livestock owners or veterinarians; and

b) An active programme of examination of statistically selected samples from within host populations in order to detect clinical signs or other indications of the occurrence of disease or transmission of infection.

In either case, any suspicion of disease activity should be followed up by quarantine, confirmatory diagnostic work and any necessary disease control measures. Surveillance thus implies that official action will follow from the discovery of evidence of disease or infection. It can be contrasted with monitoring, in which the gathering of data from the field takes place similarly, but no official action based on the findings is implied in the data-gathering activity.

3. Steps to be taken to declare a country to be free from Rinderpest

The current goal of Rinderpest control is to achieve freedom of countries and later of entire world regions from Rinderpest with the ultimate aim of achieving global eradication. It is therefore necessary to institute a system for verifying the steps towards these short and long term aims, and to assist countries which wish to trade in livestock and livestock products, but face difficulties due to the presence or past occurrence of Rinderpest.

A three-stage process of achieving and proving freedom from Rinderpest is, therefore, envisaged. Once a country is satisfied that it is free from Rinderpest and that the disease is unlikely to be re-introduced, the country

can declare itself provisionally free from Rinderpest provided it is satisfied it meets the criteria listed below.

Subsequent steps are then subject to international verification under the auspices of the OIE.

At least three years after a country has declared itself provisionally free from Rinderpest, a country that meets the criteria stated below may be declared by the OIE to be free from Rinderpest disease. At least one year later, a country, which meets more stringent criteria with regard to Rinderpest, may be declared free from Rinderpest infection.

The specific criteria proposed for each stage of this process are presented diagrammatically in Figure 4 and in words as follows:

3.1 Provisional freedom from Rinderpest

For a country to declare itself (or a zone within the country) provisionally free from Rinderpest, it must fulfil certain conditions, which are:

i) No clinical disease should have been detected for at least two years;

ii) There is an effective veterinary service, which is able to monitor the animal health situation in the country;

iii) The service investigates all clinical evidence suggestive of Rinderpest;

iv) There is an effective reporting system, both from the field to the central veterinary authority, and by that body to the OIE;

v) There is a reliable system for preventing the introduction of infection, which is carried out by proper border control, quarantines, etc.;

vi) all vaccinations against Rinderpest will cease by the date of the declaration. The OIE and neighbouring countries must be notified of this decision (in writing), giving the date from which vaccination ceased.

3.2 Freedom from Rinderpest disease

A country or a zone which has not vaccinated against Rinderpest for at least five years and has throughout that period had no evidence of Rinderpest may be declared free from Rinderpest disease by the OIE based on conclusions of the FMD and Other Epizootics Commission, provided that the country has had throughout that period and maintains permanently an adequate disease reporting system.

OR

A country which has declared itself, or a zone within the country, to be provisionally free from Rinderpest may be declared by the OIE free from Rinderpest disease provided that the following criteria are met: (see table 1)

i) No clinical Rinderpest has been detected for at least five years;

ii) No Rinderpest vaccines have been used for at least three years in any susceptible species, and no heterologous vaccines against Rinderpest have been used for at least three years in cattle, buffaloes or yaks;

iii) The country operates both clinical surveillance and disease reporting systems for Rinderpest, adequate to detect clinical disease if it were present;

iv) All clinical evidence suggestive of Rinderpest is investigated by field and laboratory methods (including serological assessment) to refute a possible diagnosis of Rinderpest;

v) There are effective measures in force to prevent the re-introduction of the disease.

On meeting these criteria, a country may apply to the OIE to be declared free from Rinderpest disease. To maintain this status, a country must continue to meet these requirements until it is declared free from Rinderpest infection, and must annually report a summary of developments to the OIE.

If it is not practical to achieve national freedom from Rinderpest disease in a single step, a country may apply to the OIE for zones within the country to be declared free from Rinderpest disease provided that:

i) Each proposed zone has well-defined boundaries;

ii) The Rinderpest disease free zone is separated from the rest of the country and from neighbouring infected countries by a surveillance zone, or physical or geographical barriers and zoo-sanitary measures which effectively prevent the entry of infection;

iii) No clinical Rinderpest has been detected within the zone for at least five years;

iv) No Rinderpest vaccines have been used for at least three years in any susceptible species, and no heterologous vaccines against Rinderpest have been used for at least three years in cattle, buffaloes or yaks;

The country operates within the zone both clinical surveillance and disease

v) Reporting systems for Rinderpest, adequate to detect clinical disease if it were present;

vi) All clinical evidence suggestive of Rinderpest within the zone is investigated by field and laboratory methods (including serological assessment) to refute a possible diagnosis of Rinderpest;

vi) There are effective measures in force to prevent the re-introduction of the disease into the zone from the remainder of the country and from other countries.

The declaration of zones to be free from Rinderpest will not remove the requirement for the country to subsequently meet the criteria for declaration of freedom from Rinderpest disease for the country as a whole; if it wishes to achieve that status, it will have to meet all the requirements specified earlier before it can apply for a declaration of freedom from Rinderpest disease for the entire country.

Should there be a localised temporary outbreak of disease due to re-introduction of Rinderpest to a country or zone which is within two years of meeting the requirements for declaration of freedom from Rinderpest disease, that country may take special measures (including limited intensive perifocal vaccination) to eradicate the outbreak. In such circumstances, it will then require at least one year from the date of the last case or the last vaccination (whichever occurs later) before the country or zone becomes eligible to apply for a declaration of freedom from Rinderpest disease.

In making such an application under these special circumstances, the country must satisfy the Expert Panel that the outbreak did not represent endemic infection and that the disease has been eradicated by the actions taken.

3.3 Freedom from Rinderpest infection

A country which has not vaccinated against Rinderpest for at least ten years and has throughout that period had no evidence of Rinderpest disease or Rinderpest virus infection may be declared free from Rinderpest infection by the OIE based on conclusions of the FMD and Other Epizootics Commission, provided that the country has had throughout that period and maintains permanently an adequate disease reporting system.

OR

A country which has either vaccinated against Rinderpest within the last ten years or has had clinical evidence of Rinderpest, may be declared by the OIE to be free from Rinderpest infection if the following criteria are met:

i) It should have been declared free from Rinderpest disease at least one year earlier, and continues to meet the requirements for this status;

ii) There should have been an effective serosurveillance system in operation for a period of at least two years, and the findings must have been consistent with freedom from infection.

This serosurveillance must include other susceptible domestic stock as well as cattle;

iii) Investigations into infection in wild susceptible species must be carried out where these species occur in significant numbers. Where there are opportunities, sampling should be done when possible. Additional strategic sampling of domestic stock should be done in areas adjacent to large game populations to enhance the possibilities of detecting the presence of virus in the game. The findings must be consistent with freedom from infection.

On meeting these criteria, a country may apply to the OIE to be declared free from Rinderpest infection.

Declaration of freedom from Rinderpest infection can only be made for the country as a whole, and not for zones within a country.

Should there be a localised, temporary outbreak of disease due to re-introduction of Rinderpest to a country which is within one year of meeting the requirements for declaration of freedom from Rinderpest infection, that country may take special measures to stamp out the outbreak (excluding the use of vaccine). In such circumstances, the country must wait at least one year from

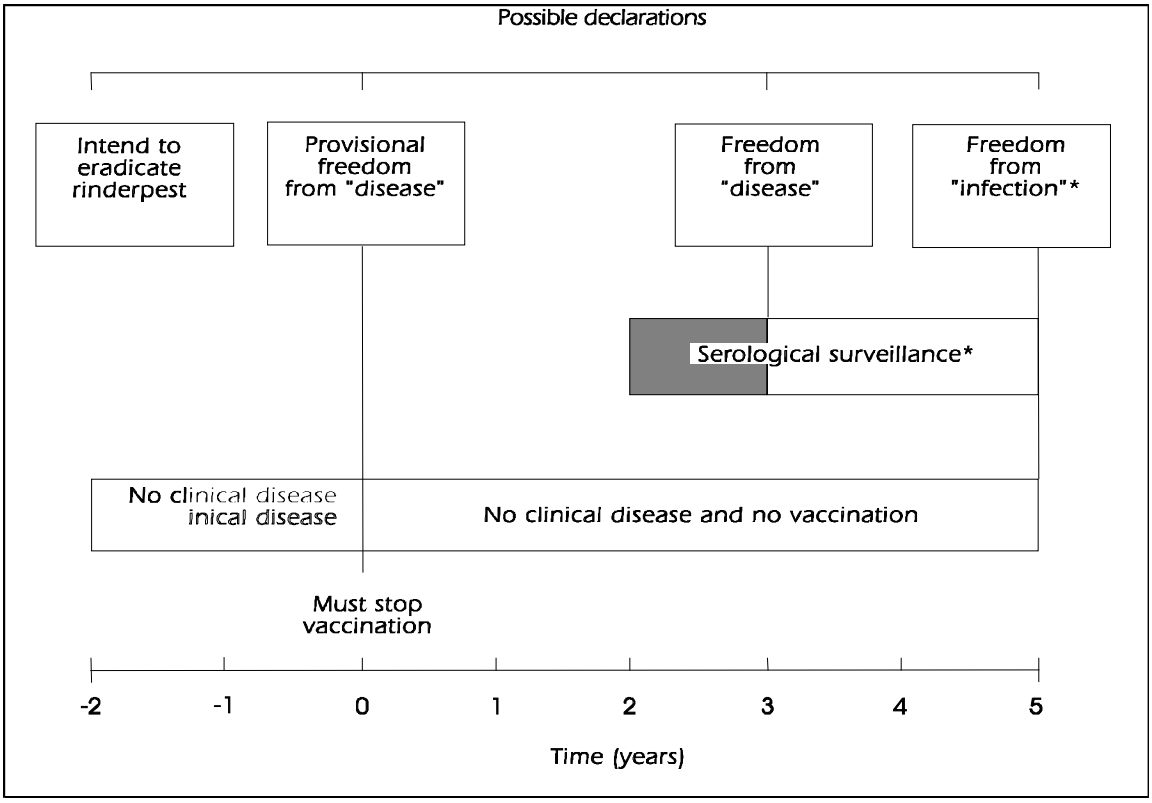
the date of the last case before it becomes eligible to apply for declaration of freedom from Rinderpest infection.

During this year there should be an effective sero-surveillance system in operation in order to prove that the virus has not been disseminated.

In making such an application under these special circumstances, the country must satisfy the FMD and Other Epizootics Commission that the outbreak did not represent endemic infection and that the disease has been eradicated by the actions taken.

In order to maintain this status, the country must continue to operate an efficient disease reporting system that would detect Rinderpest if it occurred.

FIG 5: OIE PATHWAY -REQUIREMENTS FOR THE DECLARATION OF FREEDOM FROM RINDERPEST DISEASE AND FREEDOM FROM RINDERPEST INFECTION



- If a country wants to be declared free from Rinderpest infection at the end of year 4, serological surveillance of unvaccinated animals must be in operation at the end of year 2, in order to prove that there has been no sero-positive case in the country for at least two years.

4. Epidemiological methods

4.1 Definition of sampling units

A sampling unit for the purposes of disease investigation and surveillance is defined as a group of animals in sufficiently close contact that individuals within the group are at approximately equal risk of coming in contact with the virus if there should be an infectious animal within the group.

In most circumstances, the sampling unit will be a herd that is managed as a unit by an individual or a community, but it may also be other epidemiological appropriate groupings, which are subject to regular mixing, such as all animals belonging to residents of a village.

In the areas where nomadic or transhumant movements exist, the sampling unit can be the permanent bore holes, wells or water points. Sampling units should normally be defined so that their size is not less than 50 animals or more than 1,000.

4.2 Criteria for stratification of host populations

Any disease surveillance activities must be conducted on populations stratified according to the management system, and by herd size where this is variable. Herds, or other sampling units, should be selected by proper random statistical selection procedures from each stratum.

4.3 Field procedures and sample sizes

Annual sample sizes shall be sufficient to provide 95% probability of detecting evidence of Rinderpest if present at a prevalence of 1% of herds or other sampling units and 5% within herds or other sampling units. Examining 300 herds per stratum per year can typically achieve this, but procedures for sampling should be in accordance with the Guide to Epidemiological Surveillance for Rinderpest published by the OIE, or another procedure that would achieve the same probability of detection.

Where the sampling frame of herds is known, herds shall be selected for examination by the use of random number tables. Otherwise, samples of herds

can be selected by taking the nearest herd to a randomly selected map reference, provided that the herds are evenly distributed. Failing this, any herd(s) within a fixed radius of randomly selected map references should be sampled. It must be compulsory for any selected herd to be examined or tested as required.

In carrying out clinical surveillance for evidence of Rinderpest, all animals in selected herds or sampling units will examined by a veterinarian for signs of the disease, especially mouth lesions. Any suspicion of disease should be evaluated using epidemiological and laboratory methods.

In carrying out serological surveillance for evidence of Rinderpest, the sample size within selected herds shall be sufficient to provide 95% probability of detecting evidence of Rinderpest if present in 5% of the animals eligible for serological testing. All animals born after the cessation of vaccination and more than one year old will be eligible for serological testing. Any positive result will be evaluated using epidemiological and laboratory methods to confirm or refute the suspicion of Rinderpest virus activity.

Where operational considerations require it, the number of eligible animals tested within each sampled herd may be reduced. This will reduce the probability of within-herd detection and there must be at least a compensatory increase in the number of herds sampled, so that the required 95% probability of detecting 1% between-herd prevalence is maintained. The procedures for calculating equivalent within-herd and between-herd sample sizes are described in the Guide to Epidemiological Surveillance for Rinderpest published by the OIE.

5. Diagnostic methods for Rinderpest and Rinderpest related viruses

Where clinical and/or serological surveillance is undertaken in nominally Rinderpest-free populations, it is vital to have available a variety of laboratory tests and to use one or more of the (se) methods described in the OIE Manual of Diagnostic Tests and Vaccines.

National laboratories should be able to undertake tests for Rinderpest antigen and antibody detection such as:

- for antigen detection the agar gel immuno-diffusion test and/or the immuno-capture ELISA2 for detection of Rinderpest/PPR3 viruses

1 ELISA: Enzyme-linked immunosorbent assay

- for serological surveillance the competitive ELISA

If a national laboratory cannot perform virus isolation and identification, samples should always be sent to Reference Laboratories.

In any case, National Laboratories should submit representative samples to the Reference Laboratories for characterization.

6. Evaluation of disease status

Evaluation of applications for the status of freedom from disease or freedom from infection will be the responsibility of the FMD and Other Epizootics Commission, which, if necessary, will ask the Director General of the OIE to appoint an Expert Panel in order to reach an informed decision to present to the International Committee for ratification.

The composition and method of selection of the Expert Panel shall be such as to ensure both a high level of expertise in evaluating the evidence and total independence of the Panel in reaching conclusions concerning the disease status of a particular country.

Annex 1.3: Responsibilities of the Public and Private Sectors in Livestock Development

Functions	Public	Private	Comments
AI	R	+++	GOT regulates/controls semen importation
Animal Welfare	R+	++	Legislation review
Breeding	+	++	Development of policy
Certification	++	+	
Clinical Services		+++	Private Vet. Practices/NGOs
Compulsory Testing	++	+	Private contracts
Diagnosis/Reporting	++	+	VIC s and PVPs
Diagnosis/Support		+++	Private laboratories
Drug and Vaccine Production/Distribution		+++	GOT to regulate and inspect
Embryo Transfer	R	+++	as for AI

3 PPR: Peste des petits ruminants

Emergency Disease Response	++	+	Private contracts in mass vaccinations
Emergency Planning	+++		
Export Inspection	++	+	Private contracts
Extension	++	+	
Food Hygiene/Meat Inspection	R++	+	Private contracts
Herd Health	+	++	Through extension
Marketing	+	++	Zoosanitary inspection
Diseases Surveillance and reporting/Monitoring	++	+	Field staff, VICs and Epid. Unit
Notifiable Disease Control	++	+	Field staff and Private Vet. Practices
Policy/Planning	+++		MAC core function
Quality Control for Drugs and Vaccines	R+++		Inspection and law enforcement
Quarantine	++	+	Law enforcement
Registration of Veterinarians/Paravets	R+++		Legislation review
Research	++	+	Private sector commissions GOT
Tick Control	+	++	
Training	++	+	
Tsetse/Trypanosomosis Control	+	++	
Mass Vaccinations (routine)	+	++	Private contracts
Zoonoses Control	++	+	

R signifies a major regulatory role for Government including legislation/regulations review

FIGURE 5 ANIMAL DISEASES EMERGENCY CONTROL ORGANISATION STRUCTURE.

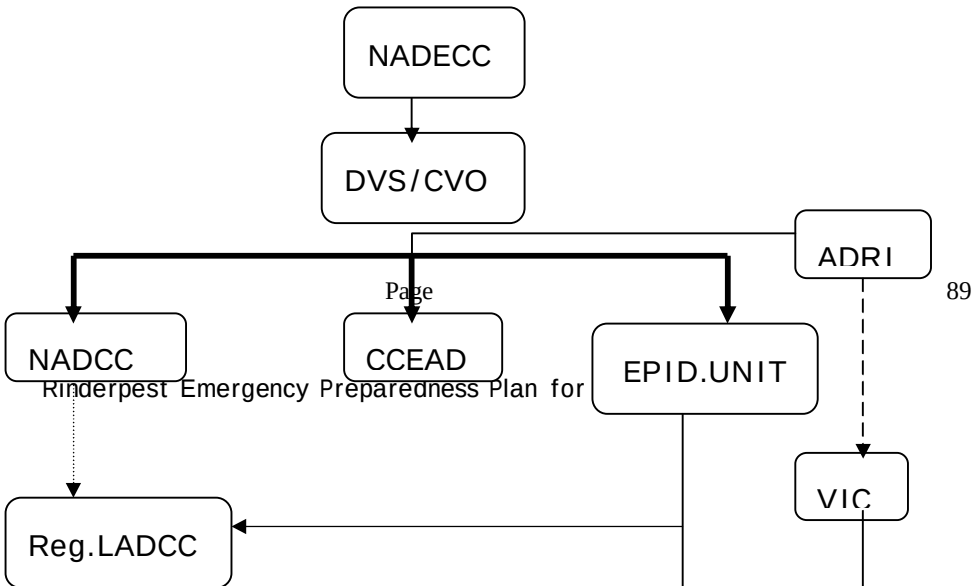


Figure 6: Organization Structure of the Ministry of Water and Livestock Development 2002