

**FEDERAL REPUBLIC OF NIGERIA**

**DOSSIER ON APPLICATION FOR RINDEPEST DISEASE FREE STATUS**

**DEPARTMENT OF LIVESTOCK AND PEST CONTROL SERVICES  
FEDERAL MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT**

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**GARKI, ABUJA,**

**NIGERIA**

# RINDERPEST DISEASE FREE COUNTRY

## I. RESUME OF REPORT

Résumé of Report of Country, which applies for status, under Chapter 2.1.4 of the *International Animal Health Code*, as a Rinderpest disease free country.

### 1. Regular and prompt animal disease reporting system

#### a) National System

At the Federal Department of Livestock & Pest Control Services (FDL&PCS), Abuja, is an Epidemiology Branch that has responsibility for the collection, collation and analysis of animal diseases situations on monthly basis. This, the Branch does in close collaboration with the State Veterinary Services nation wide. The States receive data from their respective Zonal Veterinary offices. In addition, the states also receive reports from private veterinary practioners to complement their reports.

#### b) Data Collection

Data is collected through both passive and active surveillance on the disease status of the State. In the event of an outbreak, a First Report on the Disease Outbreak, Progress Report and a Final Report are also submitted on pre-designed formats. Monthly disease reports are submitted by the State Directors of Veterinary Services (DVSS) to the Director, FDL&PCS at the end of each month. These are compiled to form the National report. Sample copies of these forms are attached as Annex 1

#### c) Data analysis

The various disease reports from the States are collected, collated, analyzed, distributed and stored by the Epidemiology Branch of the Animal Health and Quarantine Services Division at the Headquarters of the FDL&PCS. A sample of such reports is attached as Annex 2.

#### d) Reports to International Organisations

The international organizations to which diseases situation reports are forwarded to include the International Office of Epizootics (O.I.E), Inter-African Bureau for Animal Resources (IBAR), Food and Agriculture Organization of the United Nations (F.A.O) and World Health Organization (W.H.O). The monthly disease situation reports are submitted on quarterly basis, while a comprehensive annual report is submitted at the end of the year.

### 2. No rinderpest outbreak in country in past 5 years

*(State date of last outbreak and refer to rinderpest eradication section)*

The last confirmed outbreak of Rinderpest in Nigeria was in April 1987 at Riyawa hamlet of Kaduna State. The outbreak involved 507 cattle with 300 sick and 1 death.

### **3. No vaccination in country in past 3 or 5 years**

*(Whichever is applicable see Appendix 4.5.1.1 of the International Animal Health Code)*

*State here whether vaccination in the country is prohibited, since what date, and briefly describe how this is enforced.*

Vaccination against Rinderpest in Nigeria was stopped with effect from 1<sup>st</sup> April, 1998. The decision was taken by the National Council on Agriculture (NCA), on 28<sup>th</sup> March 1998. (Copy attached as evidence as Annex 3). The NCA further directed the stoppage of production and importation of Tissue Culture Rinderpest Vaccine (TCRV).

These decisions were enforced through:

- a) Official stoppage of vaccination and strict monitoring of vaccination programmes by all States of the Federation.
- b) Stoppage of TCRV vaccine production by the National veterinary Research Institute (NVRI).
- c) Stoppage of official importation of TCRV.
- d) Strict monitoring of importation of vaccines at all the Air and Sea ports of the country as well as border crossings.
- e) Encouragement of production of a homologous vaccine against PPR by NVRI.

### **4. Date of declaration of provisional freedom from Rinderpest**

*(Where applicable – see Appendix 4.5.1.1 of the International Animal Health Code)*

Nigeria declared itself provisionally Rinderpest disease free with effect from 1<sup>st</sup> April 1998.

### **5. Surveillance and regulatory measures**

#### **A. Surveillance**

*Briefly describe system, refer to recommended standards for epidemiological surveillance for rinderpest (Appendix 4.5.1.1 of the International Animal Health Code) and include:*

**Passive surveillance** against Rinderpest is being carried out at all official Veterinary clinics & hospitals, livestock markets, abattoirs, slaughterhouses, control posts, stock and transhumance cattle routes, livestock farms and individual herds. All clinical signs suggestive of Rinderpest are fully investigated. In addition these points also serve to conduct surveillance on all other diseases.

**Active surveillance:** With the commencement of PACE, an Epidemio-surveillance Network is being established involving all stakeholders. The organizational structure of the network has been approved by the National Steering Committee of the PACE project.

Further to this development, 166 Surveillance agents were trained to carry out routine surveillance at specially designated surveillance points all over the country. They are to monitor these points and take samples in cases of suspicion to the three selected diagnostic laboratories (NVRI, Vom and Veterinary Teaching Hospitals at Ibadan and Maiduguri) for analysis.

Similarly, a Wildlife Epidemio-surveillance network programme is also being put in place to assess the status of Rinderpest and other Epizootic diseases in the wildlife population of the country. Already a wildlife Epidemio-surveillance training programme has been conducted for 22 wildlife officers and Veterinarians from 11 National Parks. Also a wildlife capture exercise was conducted at the Kainji lake National Park, where serum samples were collected

from 7 western kobs and 1 buffalo and analyzed for Rinderpest. The result of the first phase of the analysis using ELISA indicated absence of Rinderpest antibodies. Confirmatory analysis is being awaited from Vet lab, Dakar.

Also in preparation for the country's application for a disease free status, a clinical surveillance was conducted as required by OIE in conformity with Appendix 3.8.2 of the International Animal Health code. Details of this exercise are provided as follows:

(i) System of husbandry of susceptible livestock species;

The susceptible livestock species in Nigeria are mainly Cattle. However small ruminants and pigs are also raised. The system of husbandry in the country can be basically classified into:

- Extensive – basically transhumance. They constitute over 85% of the cattle population in the country.
- Semi-extensive – basically semi sedentary, mixed species, with little movement around pasture areas and grazing reserves.
- Intensive – Large-scale commercial farms and ranches, whose number is gradually increasing in the country, presently represent about 5% of the population.

(ii) Sampling units;

For the purpose of the recently conducted Rinderpest Clinical and Sero-surveillance exercise, the sampling units were Local Government Areas (LGAs). The use of LGAs as sampling units is preferred because it is difficult to use villages, as their number is so enormous.

There are 774 LGAs in Nigeria and 300 of them were selected randomly to represent the 300 sample units required for the sero-surveillance programme. This is based on the fact that 299 sample units will give 95% probability of detecting (evidence of) rinderpest if present at a prevalence of 1% of true prevalence and that at these level 4,500 samples would be adequate.

(iii) Stratification of host population

As indicated above, the majority of the country's cattle population is kept under the extensive, transhumance system of management by nomadic pastoralists. As a consequence, the stratification of animals sampled under the clinical and sero-surveillance recently conducted was made to suite this unique system of management.

- (iv) Sample size: As indicated above, the sample size collected is 6180 animals examined.

## **B. Regulatory measures**

***Briefly describe measures, (refer to section on measures to prevent introduction of rinderpest in chapter 2.1.4 of the International Animal Health Code, 1999), including:***

i) National Animal Disease legislation;

Veterinary practice, Disease control and Animal Health matters in Nigeria are regulated and controlled through the following legislations and Regulations:

- Animal Diseases (Control) Decree 10 of 1988 – which controls importation and exportation of animals, animal products, biologics & infectious agents etc. The

Decree similarly made provision for surveillance of animal diseases and empowered veterinary officers to conduct search in premises for the purposes of surveillance against animal diseases.

- The Veterinary Surgeons Decree (1969) amended in 1987 – which established standards for award of the Veterinary degree certificate and Veterinary practice in the country. The Decree as well gave power to the Veterinary Council of Nigeria (VCN) to register qualified Veterinarians and to establish the postgraduate College of Veterinary Surgeons.
- Northern Nigeria Meat Edict (1965) – This Edict has been adopted by all the Northern States of the country and set standards for establishment and control of Abattoirs and slaughter slabs as well as inspection of animals slaughtered for human consumption.
- Southern States Edicts on Meat Inspection and Hygiene (1971 –80)
- Various State Edicts on Registration and Monitoring of Veterinary Clinics and Establishments
- ECOWAS Transhumance regulation – for transborder animal movement control etc
- (Proposed) Meat inspection and Hygiene Act – now with the National Assembly
- (Proposed) National Law on Veterinary practice.

ii) National Rinderpest Contingency Plan;

An Emergency Preparedness Plan Programme is being developed for the purpose of handling all animal disease emergencies. The National Steering committee of the PACE project has already approved the plan in principle. A draft copy of the plan is attached as Annex 4.

In addition a Rinderpest vaccine bank of One million doses has been established at the NVRI as a component of the Rinderpest contingency plan. These vaccines have been stored in good condition, to be used only in case of official declaration of Rinderpest. The quantity of vaccines being kept will be gradually reduced as we strengthen our preventive strategies.

iii) Emergency funding provisions

While regular Government budgetary allocation has always been made for Animal Health and Disease Control, special provisions are being made for the purpose of handling emergencies. The sources of these emergency funds include:

- National Agricultural Development Fund (NADF)
- Emergency Funds from the Presidency
- Ecological Funds
- National Emergency Management Agency (NEMA).
- National Agricultural Insurance Corporation (NAIC)
- The country can also take recourse to the OIE special funds for disease emergencies.

## II. REPORT CONTENTS

Please address concisely the following topics. National regulations laws and Veterinary Service directives may be referred to and annexed as appropriate.

### Foreword

This Dossier is prepared by Nigerian Veterinary Services and forwarded to the OIE through AU/IBAR/PACE to support the country's application for rinderpest Disease Free Status. The document is compiled in compliance with OIE requirements and in conformity with the relevant Articles of the OIE Animal Health Code of 2002, particularly Appendix 3.8.2.

Nigeria has not had any report of rinderpest outbreak since May 1987 and having declared itself provisionally free of the disease, with effect from 1<sup>st</sup> April, 1998 has stopped vaccination with effect from April 1998. We have also maintained a sufficiently adequate disease reporting system to date. We have in addition carried out clinical and serological surveillance for the disease in accordance with the OIE Guide for surveillance against rinderpest. The country is therefore reasonably qualified to apply for Rinderpest Disease Free Status.

This dossier has been prepared by the Veterinary Services of the country with the support of the PACE Project and is hereby submitted to the OIE Foot and Mouth Disease & other Epizootics Commission for the purpose of supporting our application for Rinderpest Disease Freedom status.



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Director, Federal Department of Livestock and Pest Control Services  
Official Nigerian Delegate to the OIE.

## **1. Introduction**

### ***1.1. Regional framework with special emphasis on co-ordination of surveillance and disease control***

Nigeria is situated in the South Eastern part of West Africa and is bordered to the West by Benin Republic, North by Niger Republic, East by Cameroon, North East by Chad Republic and to the South by the Atlantic Ocean. Traffic of Cattle into the country is mostly by land through our borders with the neighboring countries with a negligible percentage of importation by Air and Sea routes.

Because of the potential for spread of transboundary animal diseases being faced by the country through land borders, Nigeria has maintained contact with neighboring countries in the area of disease surveillance and control and in other regionally coordinated activities. For instance, the country had participated actively in previous Regional joint programmes such as the JP 15, JP 28 and PARC. Nigeria is an active participant in the current effort to eradicate Rinderpest from the region under the PACE project. The country is also steadily being integrated into the regional network for the monitoring and control of livestock diseases in general.

The Regional Programmes and/or Bodies that Nigeria participates in include the following:

- Lake Chad Basin Commission – A regional body made up of Nigeria, Niger, Chad, Cameroon, Sudan and Central African Republic.
- Nigeria-Niger Joint Commission – This is mainly a technical forum for the purpose of transfer of information and streamlining of activities on all sub-sectors of the economy including livestock production, disease control and trans-boundary pests control.
- ECOWAS Transhumance (Transhumance movement control programme) – The protocol for this programme has been approved by the ECOWAS Head of Governments in 1998. The major activity under the programme includes Disease control through control and monitoring of transborder animal movement. The programme also includes harmonization of standards for vaccine production in the sub-region.
- Cross border meetings – These are being planned under the PACE project with all the neighboring countries (Chad, Benin, Cameroon and Niger Republics). The aim of the project is to harmonize our disease control activities.

In addition to the above, Nigeria has continued to maintain international contacts and membership of international agencies involved with disease control and livestock development in general including the OIE, AU/IBAR, PACE project, FAO, EU etc.

### ***1.2. Livestock industry, including farming systems, marketing etc***

The livestock industry in Nigeria, which has an estimated population of 15.16m heads of cattle, 45.06m Goats, 28m Sheep, 5million Pigs and over 118m Poultry as at 2003 (projected from the 1991 livestock census), contributes about 25% of the Agricultural GDP and 5.83% of the country's total GDP. In addition, the Livestock industry provides a source of employment and livelihood to majority of the rural population of the country and those involved in Animal and Animal product marketing. Over 80% of the country's population is engaged in the livestock industry in one form or the other.

The Livestock farming systems in the country include Transhumance, Semi-extensive and Intensive.

- Transhumance – Over 85% of the cattle population is owned by Pastoralists and managed under the transhumance.
- Semi-Extensive – The animals are mostly mixed species with Goats and Sheep. They are usually released to go for grazing around communal lands but return home daily. They are also in most cases provided with feed supplementation.
- Intensive system – These constitute a very small but growing percentage of livestock population in the country. They are mostly made up of improved exotic or cross breeds with few managed under zero grazing system.

Pigs in the country are usually managed under the intensive and free-range system. Majority of the poultry on the other hand are managed under the open range with little or no supplementation. Intensively managed Commercial poultry farms constitute about 15 –20% of the poultry population and are mostly located in and around urban areas.

The system of formal marketing of livestock and animal products is not well developed in the country. The systems and structure in existence include:

- International marketing – a lot of informal cross border marketing of animals and animal products take place at international markets located near the country's border. However, formal international marketing of Animals and Animal products from the country is almost non- existent and no recent records exist for any export except few permits issued for export of Tallow and semi processed Hides & Skins. Exportation of raw Hides and skins are presently prohibited.
- Local marketing – Local marketing of Animals within the country is vibrant with movement of animals mainly from the Northern to the Southern part of the country. The types of markets in existence are discussed in section 4.5 of this report.

## **2. Veterinary system**

### **2.1 Legislation**

- Animal Diseases (Control) Decree 10 of 1988 – This is the enabling legislation for the control of scheduled animal diseases in Nigeria. The legislation is sufficiently comprehensive in the powers given to the Veterinary services to control schedule diseases. It gave widespread powers to the Federal and State Veterinary services for the implementation and enforcement of compliance with measures deemed necessary for the control of scheduled diseases. This includes the notification of disease outbreaks and the enforcement of subsequent control measures and disinfection measures including the slaughtering and disposal of infected animals and their products. It also regulates the importation and exportation of Animals, Animal products, biologics, vaccines and livestock feed; and movement of livestock within the country and across our borders. Specifically, the following sections of the Decree are relevant here:
  - Articles 1 – 4 – On importation of Animals, Animal by-products, biologics and infectious agents.
  - Article 8 – Notification of Diseases
  - Articles 12 – 14 – Control of Animal movement
  - Schedule 1 – List of major diseases.
 A copy of the Decree is attached as Annex 5.
- State Edicts – These permit States to regulate Animal Health Services in their domains for the purpose of maintaining standard quality of service and professionalism and



elimination of unethical conduct. The proper implementation of these legal provisions would in the long run eliminate quackery and safeguard the interests of both Veterinarians and animal owners. These laws would also enhance private veterinary practice and eliminate unfair practice by public sector Veterinarians as well. A sample is hereby attached as Annex 6

- Veterinary Surgeons Decree No 37 of 1969 (and the Veterinary Surgeons {Amendment} Decree No 40 of 1987) – This Decree gives the VCN responsibility for the determination of the standards of knowledge and skill to be attained by persons seeking to be registered as Veterinary Surgeons in Nigeria; and maintenance of standards of discipline and professional conduct within the Veterinary profession in the country. A copy of the Decree is attached as Annex 7.
- Meat Edicts - many States have Meat Hygiene or Meat Inspection Edicts to regulate the activities of Veterinarians, Butchers and Meat Sellers etc. By virtue of these edicts, Meat inspection as well as disease surveillance and monitoring at the abattoirs is the responsibility of the veterinary services in all States of the Federation.

Similarly Local Government Councils (LGCs) have By-laws that gave them some power to regulate slaughter of animals for local consumption, along with regulation of livestock movement.

- (Proposed) Meat Inspection and Hygiene Act - The Act is to provide regulations on the mode of establishment, registration and licensing of slaughterhouses and their different grades. It is also to provide for the modes of transportation, slaughter and international traffic in food animals, carcass and animal by-products. The law also empowers Directors of Veterinary Services to make relevant regulations and for Veterinarians to discharge their legitimate duties in the slaughterhouses including meat inspection and disease surveillance. The draft Act is currently with the National Assembly for enactment.
- (Proposed) National Law on Veterinary Services - This law is being contemplated to properly determine the tasks, structure and functions of Veterinary services as well as their administration and control. The law will also set the standard for determination of roles amongst the various services and establishment of sanitary mandate for veterinary practice among others. It will as well set the standard for relationship with Para veterinary and other related professionals.

The Federal, States and LGCs enforce these laws and regulations by their personnel that are stationed in the various surveillance points nationwide. In situations of emergencies traditional rulers and law enforcement agencies are used to further enforce these laws and regulations.

## **2.2 Official Veterinary Service**

The Official Veterinary Service in Nigeria is rendered by the three tiers of Government, namely the Federal, State and LGCs. At the Federal level, the Federal Department of Livestock and Pest Control Services (FDLPCS) is responsible for Policy formulation & supervision and provision of assistance to States for surveillance and disease control. In addition it directly carries out surveillance at the ports of entry and borders on all

imported/exported animal/animal products, hatchable eggs, birds, biologics and infectious agents etc.

State Veterinary Services on the other hand are responsible for disease control and provision of animal health services, supervision of veterinary clinics and establishments, management of abattoirs and registration & monitoring of private veterinary establishments etc.

Local Government Councils mainly provide linkage and support to the State Veterinary services.

To carry out these functions, the Veterinary Service has over 3500 registered Veterinarians and 7200 Para-Veterinary professionals. Out of this, about 1500 Veterinarians and a large number of Para-Veterinary professionals & auxiliaries are engaged by the public service.

### **2.3 Role of Society, Farmers, Industry**

Livestock farmers and their associations play important roles in animal health care delivery services. The Federal and State Veterinary Services liaise closely with these associations during vaccination campaigns and in situations of diseases outbreaks for the purposes of mobilizing the farmers during disease control programmes. The major associations in the country include:

- Apex Farmers Association of Nigeria (AFAN)
- Miyetti Allah Cattle Breeders Association Of Nigeria (MACBAN)
- Al-Hayah
- Mobgal Fulbe Development Association.
- Pastoral Resolve
- Poultry Association of Nigeria (PAN),
- Pig Farmer's Association
- Goat producers Association etc.
- Feed Millers Association of Nigeria

While most of the associations are basically traditional/cultural based in rural areas, few are pressure groups and exert some influence on Government policies and development of programmes.

There is only one vaccine manufacturer in Nigeria, the NVRI; and 2 registered manufacturers of Veterinary drugs, Sam Pharmaceuticals and Tuyil Pharmaceuticals. There are however many companies that are engaged in Veterinary drugs & feed supply and distribution in the country. The major ones include Animal Care, Adset, Bimeda, and Rhone Poulenc etc. Most of these companies have Veterinarians in their employment and maintain regular contact with livestock owners. In the process they advise them on diseases control.

## **3. Rinderpest eradication**

### **3.1 History (epidemiological description of events)**

Records showed that rinderpest reached Chad in 1886, from where it quickly spread to Nigeria. It had a devastating effect on cattle population killing 80-90% of the cattle population at that time. Also following the widespread drought and famine between 1912 and

1913, there was another disastrous epidemic in 1913-1914. The epidemic of 1919-20 caused mortalities in the range of 60-90%. There was no apparent means of control during the period until 1924 when a national Rinderpest vaccination schedule was introduced through the use of double inoculation method. Both serum and virus were initially used, and later a single dose of dried goat tissue vaccine was introduced.

By 1930, a network programme for voluntary vaccination was established and this resulted in reduced mortality of 5-20% in the herds involved. The severity of the disease reduced due to increase in the number of animals vaccinated. In fact most of the mortality occurred in unvaccinated calves from 6 months to two years of age as a result of waning of maternal immunity. Trade cattle were also routinely vaccinated. Other zoo-sanitary measures introduced included quarantine and slaughter of infected animals. Legislation was also passed making vaccination compulsory. The disease also affected the neighboring countries, and their migratory cattle served as a source of infection to Nigeria's national herd.

By 1960 the situation began to deteriorate again. The disease remained enzootic in Nigeria and other countries until a regional campaign tagged Joint Project 15 (J.P15) was introduced in May 1961 and executed in Nigeria between 1962 and 1965. The campaign was conceived on the basis of the knowledge that no meaningful improvement in rinderpest control could be achieved without the introduction of a regionally coordinated programme due to the very large land mass and the nomadic nature of the major livestock owners in the region. The Project resulted in substantial reduction of outbreaks of the disease and from 1968, no outbreaks of Rinderpest was recorded in Nigeria.

However, as a result of economic constraints and political instability, many countries in Africa including Nigeria failed to implement the necessary post-vaccination conservatory measures. This failure led to the persistence of residual foci of infection in a number of traditional cattle producing areas in Africa. With the population of susceptible stock building up, preponderance of endemicity in the surrounding countries, undisciplined and illegal cattle movement and trade, the situation became conducive for the recrudescence of the disease in Nigeria. In 1980, Rinderpest entered Nigeria through infected cattle from the Republic of Niger that were smuggled into Sokoto State by a trader. This outbreak was however controlled by a bilateral campaign that was sponsored by the Food and Agriculture Organization (FAO), OAU/IBAR, the British and French Governments.

In January 1983, a highly contagious and virulent strain of the Rinderpest virus emerged from the Sudan Republic and entered Nigeria through Dikwa in Borno State via the Republic of Tchad and Cameroun. A total of 1081 outbreaks were recorded, which led to the death or slaughter of more than half a million head of cattle between 1980 and 1987. A total of 11.3 million cattle were vaccinated through the efforts of the Federal and State Governments. Thus, outbreaks were brought to nil status by mid 1987 through an unrelenting vaccination. This status has been maintained to date. In 1986, the European Economic Community (EEC) through OAU/IBAR sponsored the Pan-African Rinderpest Campaign Programme (PARC) to further strengthen the national efforts in the control and eradication of the disease. The programme contributed to the proper articulation and harmonization of the campaign strategies at both national and international levels. (See End of PARC Report in Annex 8)

### 3.2 Strategy adopted

As a strategy against the introduction of exotic diseases as well as spreading diseases to other countries the Federal Government initiated the development of control posts and quarantine

stations along our international borders. To date eleven quarantine stations, thirty-four International and four interstate control posts exist in the country. However due to lack of funds, only 7 quarantine stations, 8 international control posts and 3 inter state control posts are manned and functional. (Details are given in Annex 9)

Similarly a total of 18 officers from the Veterinary Quarantine Stations, International and interstate Control Posts were trained between March and April, 2003 on Animal Disease Surveillance and Reporting Techniques conducted by PACE. During the training, manuals for disease surveillance were given to the participants and sampling kits were procured and distributed to them for fieldwork.

### 3.3 Vaccines and vaccination

The NVRI, Vom Nigeria was responsible for the production of TCRV that was used during PARC. Owing to the high demand for these vaccines and the need to control the disease within the shortest possible time, vaccines from other sources like India, Botswana and Kenya were procured by the Nigerian Government and OAU/IBAR, Nairobi and used in Nigeria. Following the successful control of the disease by 1989 no more TCRV vaccines were imported. Similarly the use of the vaccine gradually declined up to 1998 when vaccination was stopped.

A policy statement to stop commercial production of TCRV was also made during the 10<sup>th</sup> NCA meeting that took place in March 1998. At the same time official importation and issuance of license to import TCRV were stopped.

With the decision to stop vaccination against Rinderpest, the NCA directed NVRI to develop a homologous vaccine against PPR. This, the Institute did in earnest such that today, the Institute has capacity to produce enough PPR homologous vaccines to meet national needs.

### 3.4 Organization of vaccination, surveillance and freedom verification

#### a) Organisation of Vaccination Campaigns

Prior to the Rinderpest outbreaks of 1980 to 1983, vaccination against Rinderpest was not enforced. However, with the reintroduction of the disease in 1980 both Federal and States governments launched ring vaccination campaigns. As the severity of the disease escalated, the Federal Government officially launched a National Vaccination Campaign in April 1983. This paved way for massive national vaccination campaigns along with publicity on the disease. Radio and television programmes were produced in addition to radio jingles to sensitize the farmers and the general public on the disease. Similarly newspaper articles, posters and handbills on the disease were produced and distributed nationwide. The State Veterinary Services provided personnel and logistic support for field vaccination and their effort was complemented by the Federal Government through strategic assistance in the form of logistics, vaccines, vaccination equipments and cold chain facilities. The National Veterinary Research Institute (NVRI) was similarly supported to improve its production capability to meet national needs. At a later stage Federal and State Vaccination Task Forces were formed. These calculated activities drastically reduced the number of outbreaks to just one in 1987.

With the commencement of PARC, a National Coordination Office was established with a National Coordinator and six Zonal Coordination Offices for the Project. These officers supervised the implementation of the PARC Project all over the country. In all, there were 84 Rinderpest Task Force Units that carried out the vaccination campaign nationwide. A veterinary officer was appointed to lead each unit, with other members being four inoculators, one attendant and a driver.

The Financial support provided by the then European Economic Community (EEC) during the implementation of PARC lent a lot of weight to the national efforts in controlling the disease. The support by the EEC was in the form of vehicles, vaccination and cold chain equipments, along with other inputs such as ice making machines, surgeons' kits etc.

#### b) Surveillance:

Passive surveillance against Rinderpest during and after PARC was organized by the State Veterinary Services through routine clinical surveillance by Veterinary personnel at various surveillance points.

Prior to PACE, surveillance was carried out by States personnel with support from the Federal Animal Health Officers from time to time. Thus there was no Epidemio-surveillance Network as is known today. Animals were examined for diseases at the International and interstate control posts, cattle markets, abattoirs/slaughter houses, clinics and farms by veterinary officers and Para veterinary staff. Thus passive disease surveillance through disease reporting from States veterinary services was adequately implemented. Outbreak reports and reports of diseases status were remitted to the Epidemiology Unit of the Federal Department of Livestock and Pest Control Services.

A structure for active surveillance against Rinderpest is now being put in place under the PACE project. The activity will involve all stakeholders including Public and Private Veterinarians, Para-Veterinary professionals, Laboratory personnel, Livestock farmers and their Associations etc. Already surveillance points have been identified and the surveillance agents trained through an in-house workshop, while inputs will be provided to the agents in due course.

#### c) Freedom verification

Between 1989 to 1994 seromonitoring exercises were conducted in Nigeria to determine the level of Rinderpest immunity level of the national herd. Also sera were collected from small ruminants and pigs and analyzed. Annex 10 gives a summary of such exercises.

### 3.5 Execution of vaccination, surveillance and freedom verification

The execution of vaccination campaigns against Rinderpest has been given under section 3.4 above. Similarly surveillance against Rinderpest before PACE was as presented in Section 3.4 above. With the inception of PACE, Surveillance agents have been trained and are to be equipped with inputs to enable them collect samples for laboratory analysis.

In our efforts to process Freedom from Rinderpest Disease all the states and Federal Veterinary Services are gearing up for the verification exercise.

### 3.6 Animal identification – movement

The systems of animal identification in Nigeria are as follows:

- Ear notching of vaccinated animals during PARC
- Ear tags
- Traditional – by names and description
- Herd/group identification – for transhumance

Generally livestock movement in Nigeria is in 2 forms, viz:

- a) Transhumance: The pastoralists use stock routes. This movement can be Transboundary and therefore required close surveillance at the International Control Posts.
- (v) Trade Cattle Movement: The movement of trade cattle in Nigeria is mainly by trucks, with few on hoof. The animals in these trucks pass through intra & interstate control posts for inspection.

### 3.7 Official Veterinary Service supervision (Records to be available)

Supervision of Rinderpest eradication by the FDL&PCs has been through enforcement of livestock entry measures at our international control posts and quarantine stations. To ensure effective supervision some structures by way of buildings and other infrastructure have been put in place at Illela, Jibia & Maigatari international Control Posts while those already existing at Jebba, among others have been reinforced. The issuance of import and export permits for livestock, especially cattle has been greatly restricted. Qualified Veterinarians control the Veterinary quarantine offices at all the country's International Air & Seaports.

Supervision of eradication programmes at State level has been by States veterinary personnel carrying out routine surveillance and reporting all suspected cases of rinderpest. Examples of outcomes of such surveillance activity were the suspected outbreaks that occurred in Edo state and ILCA farm in 1992, Katsina state in 1997 and Niger state in 1996. The subsequent actions taken during these outbreaks are attached as Annexes 11, 12, 13 and 14.

States on their own routinely conduct surveillance at abattoirs, livestock markets, intra and inter-states control posts and clinics.

Technically, all LGCs work in collaboration with State Veterinary Services as far as surveillance, control and eradication of Rinderpest and other diseases is concerned.

## 4. Rinderpest surveillance

### 4.1. Diagnosis

#### 4.1.1 Clinical (*Notification and investigation procedures, recent numbers of suspected cases/outbreaks*)

Once a suspected rinderpest case is reported, the affected animals are quarantined. A first information report on the outbreak is sent to the FDL&PCS and the NVRI, Vom. Reports on suspected rinderpest outbreaks always involved detailed investigations by teams of

epidemiological and laboratory experts. Veterinary officers in the area with the suspected outbreaks document the clinical signs. They also conduct investigations in and around the herds with a view to help in the investigation of the diseases outbreak. Samples are collected and sent to the laboratory.

Through such activity suspected outbreaks of the disease were reported as follows:

- A suspected outbreak was reported in migratory herds in Edo state in 1992. Following investigations by the PARC Epidemiologists and the Faculty of Veterinary Medicine, Ibadan, the outbreaks were confirmed to be Trypanosomosis and dust from a cement factory in the vicinity. The animals fully recovered after being removed from the area and treated against Trypanosomosis.
- Similarly, another suspected outbreak was reported at the International Livestock Center for Africa (ILCA), Ibadan in 1992. On the receipt of the report of suspected outbreak a team from the FDL&PCS and Faculty of Veterinary Medicine, University of Ibadan carried out intensive investigation at the farm and took samples. At the end it was confirmed that the animals were not suffering from Rinderpest.
- Also in 1995, a suspected outbreak of animals showing fever and death was reported in some herds that were recently vaccinated against Haemorrhagic septicaemia in Bakori Local Government Area of Katsina state. Following close investigation by teams from the Veterinary Teaching hospital, Zaria; NVRI, Vom and the FDLPCS the animals were confirmed to be suffering from Haemorrhagic Septicaemia as a result of vaccination breaks.
- The same situation as the above was reported in Gbapo village, Agaie LGA, Niger state in 1996.

#### 4.1.2 *Laboratory (differential diagnostic procedures, numbers with results of submissions)*

Between 1980 and 1987, one hundred and eighty four samples were submitted to the NVRI, Vom for diagnosis. Of these, 125 were positive for rinderpest antigen using Ag-agar gel immunodiffusion test and/or immunocapture ELISA (Annex 15).

In 1997, the laboratory investigation into the suspected outbreak of rinderpest in Katsina gave negative result using Counter Immuno Electrophoresis (CIE) and Immuno Capture ELISA (ICE) techniques on the samples submitted (Annex 16).

#### 4.2. Clinical surveillance

***(Describe plan used to give a 95% probability of detecting rinderpest disease if clinical signs were present in 1% of herds (or other sampling units) in a stratum).***

A clinical surveillance was conducted among 461 herds in 221 villages in 160 LGAs in 36 states and the FCT. In all, 6180 animals were examined clinically, but none was positive for rinderpest.

#### 4.3. Serological surveillance

The result of the serological surveillance is inconclusive.

#### 4.4. Livestock demographics and economics

The Nigerian livestock population estimates for year 2003 are 15.16 million cattle, 45.06 million goats, 28 million sheep, 5 million pigs and 118 million poultry. The projected livestock population in each state from 1997 to 2003 is attached as Annex 17.

Majority of the cattle population in the country are in the Northern part with over 85% in the hands of nomadic pastoralists. However, during the dry season a substantial number of these move to the Middle belt and parts of the Southern States in search of pasture and water. Distribution of small ruminants follows similar pattern, but with more Goats in the southern part of the country. Poultry on the other hand is more evenly distributed with a lot of large commercial production units in the south and traditional free-range poultry in the north. Pig production is mainly carried out in the Southern States and the Middle belt region of the country.

The estimated value of the national herd is placed at over N108 billion, while the estimated off take is nearly N20 billion. The quantity of beef, mutton and goat meat produced in 2003 is estimated at 8.74 million metric tones, while the dairy milk produced in the same period is over 970 million liters.

##### 4.4.1 Livestock productivity/production pattern

According to 2003 projections, the livestock population of Nigeria (camel, cattle, sheep, goats, horses and donkeys) represents 18.605 million TLU (Tropical Livestock Units), of which cattle comprise 56.80%, small ruminants 39.25%, equines 3.40% and camel 0.55%. The productivity of the local or indigenous breeds of livestock in Nigeria is low due to poor management, poor feeding, prevalent disease conditions and harsh environment. The indigenous breeds need to be genetically upgraded as well. Over 85% of the cattle population, which, constitute the bulk of the livestock population and 30 to 40% of the sheep is owned and managed by pastoralists in an extensive system with little or no supplementation.

The average age at first calving for the local Zebu cow is 3.5 to 4.0 years of age with calving interval of 1.5 to 2.0 years and one calf per calving. For the local breeds of sheep and goats, it is 1.0 to 1.5 years for first lambing or kidding with a lambing or kidding interval of 8 to 9 months. Twinning is common from both breeds and sometimes triplets and quadruplets are obtained especially from ewes. For the local sows, the age at first farrowing is 1.0 to 1.3 years with farrowing interval of 6 to 9 months with varying litter size. Age at first calving for camel is 3.5 to 4.0 years with calving interval of 2.0 years.

##### 4.4.2 Economics of production

The livestock production system is not well organized. Most of the local producers apart from the poultry farmers rely on unimproved pasture from the rangelands with little or no supplementation. However, most villagers produce crop residues from their farm harvest for feeding their livestock especially during the critical periods of the dry season. The crop residue is also used for fattening programme of their livestock to be marketed during the



festivities. Apart from supplementary feeds such as cottonseed, cottonseed cake, Soya bean cake, wheat offal and mineral salt lick, the farmer does not quantify these feeds in terms of cost so as to arrive at a realistic profit margin at the end of the production period. However, poultry farmers and some farmers that practice intensive production system buy compound feeds and concentrates that are included in the costing, which are properly accounted for. The need to quantify the costs of the units of production cannot be over emphasized. This will lead to better-organized production systems in the country.

#### 4.5. Slaughterhouse and markets

Slaughterhouses in Nigeria are categorized as A, B, and C depending on their capacities and the uses they put to:

- Category A - are meant for export purposes and include Kano Modern Abattoir and the Bauchi Meat Factory Abattoir. Unfortunately they are not fully in operation.
- Category B - are the municipal abattoirs. There is at least one in most of the 36 States and the Federal Capital Territory. Meat from these abattoirs is sold for local consumption within the states. The UAC also runs a few abattoirs and utilize the products in their numerous fast foods industries nationwide.
- Category C – these are slaughter slabs located in all the 774 Local Government Areas of the country.

Annex 18 is the list of the different categories of slaughter facilities in Nigeria.

Formal categorization of cattle markets has strictly not been done. They are nevertheless loosely classified into 3 categories:

- Category A are the international markets located at control posts e.g. Gamborun Ngala, Borno state, Maigatari cattle market in Jigawa state, Illela in Sokoto state and Mubi in Adamawa state.
- Category B are those markets located at Interstate control posts and usually serve the local and adjacent states.
- Category C are markets located at intercity and inter-local Government control posts.

Annex 19 is the list of these markets.

#### 4.6. Official Veterinary Service supervision

As mentioned under 3.7 above, Veterinary service supervision in general is through a symbiotic relationship between the Federal and states Veterinary services working jointly at surveillance points located at abattoirs, control posts, livestock markets and clinics etc. Passive clinical Rinderpest surveillance by the FDL&PCS is mainly carried out at our international control posts and quarantine stations through strict implementation of the provision of the Decree 10 on livestock movement. The issuance of import and export permits for livestock, especially cattle has been greatly restricted, and is being done according to International standards. Qualified Veterinarians have been strategically located at these points for this purpose.

States on their own routinely conduct surveillance at abattoirs, livestock markets, intra & inter-states control posts and clinics. The States also routinely provide ambulatory services, which equally serve as a surveillance tool against diseases. Supervision of surveillance programmes at State level is being done by qualified Veterinary personnel. All suspected

cases of disease resembling Rinderpest are fully investigated. Examples of outcomes of such activities have already been mentioned above.

State Veterinary services also supervise the activities of Private Veterinary practitioners, who are by law mandated to report all suspected outbreaks they come across.

With the inception of PACE, training programmes on Diseases Surveillance and Reporting techniques were organized for surveillance agents that included those working at abattoirs, livestock markets, control posts and clinics. A training programme for private veterinarians is also being contemplated in order to enhance their capacities, while a sanitary mandate programme is being put in place to fully integrate them in the Epidemio-surveillance programme.

States Veterinary personnel also encourage livestock owners to report rumours of suspected outbreaks. The states also sponsor radio and television programmes on Rinderpest and other diseases to educate livestock owners on these diseases.

## **5. Rinderpest prevention**

### **5.1. Regional co-ordination**

Prevention of entry of rinderpest into Nigeria has been through regular border checks by control posts personnel at international Control Posts along with interaction with Border States by way of bilateral and Regional meetings. Provisions in the Animal Diseases (Control) Decree 10 of 1988 are usually enforced with regard to import and export of livestock and livestock based products.

In addition, the country participates actively at regionally organized programmes and streamlines its programmes with those of its neighbors. It is in view of this that Nigeria is an active member of the Lake Chad Basin Commission, the Nigeria-Niger Joint Commission and has ratified the ECOWAS protocol on livestock movement control. Nigeria is also an active participant under the PACE programme and liaises with international bodies such as the OIE, FAO, AU/IBAR, WHO etc where the country's animal health status reports are routinely sent.

### **5.2. Import control**

The importation or exportation of animals, animal products, biologics, infectious agents, hatchable egg, chicks and vaccines are done under permits granted by the Director of the Federal Department of Livestock and Pest Control Services (FDL&PCS) as per the Animal Diseases (Control) decree (Act) No. 10 of 1988. These items are subjected to inspection and may be quarantined where necessary by the Veterinary Quarantine officials that are stationed at the ports.

#### **5.2.1. Policy and risk assessment**

The Animal Diseases (Control) Decree No 10 of 1988 prohibits the importation of animals/animal products, hatchable eggs, biologics and infectious materials into the country except under import permit granted by the Director of Federal Department of Livestock and Pest Control Services who shall, in each case, state the conditions under which the

animals/animal products may be imported. This is in line with the O.I.E rules and regulations in terms of animals/animal products trade.

#### 5.2.2. Animals and products

The Veterinary Quarantine officers that are at the functional quarantine stations mentioned in item 3.2 inspect all imported animals, animal products and biologics etc. Due to technical and financial reasons, imported live animals are usually quarantined for 30 days on the owner's farm.. The veterinary quarantine officers at the control posts carry out inspection of the incoming animals against various diseases including Rinderpest.

Between year 1998 and 2002, animals and animal products were imported into Nigeria through formal trade where import permits were issued. Details are given in Annex 20.

However, informal livestock trade occurs across the international control posts from the four neighboring countries into Nigeria. The recorded data from such informal animal movement for year 2001 includes 703,026 heads of Cattle, 457,486 Goats, 278,054 Sheep, 4,654 camels, 1,636 Horses, 2,664 Donkeys and 1,126 Pigs

Between year 2001 to date, the quantities of semen imported are shown in Annex 21, while the quantities of biologics imported into the country as per import permit issued are presented in Annex 21. Records are also available on the importation of animal tallow into the country. However, no permits were ever issued for importation of other animal products.

#### 5.3. Biological security

Importation of all biological materials are prohibited unless under permit as provided for under the Animal Diseases (control) Decree 10 of 1988. Usually such requests come from Research Institutes like the NVRI, National Animal Production Research Institute (NAPRI), Shika and the five faculties of Veterinary Medicine in the country.

#### 5.4. Official Veterinary Service supervision

Rinderpest entry preventive measures and guidelines are usually implemented concurrently with surveillance and eradication programmes. The official supervision of such programmes and activities has been discussed under 3.7 and 4.6 above.

### 6. Response to outbreak

#### 6.1 Policy (emergency, plan, Funds)

Like for all other outbreaks, the FDL&PCS Animal Health Officers in the field work closely with their State counterparts to monitor disease situations in the field. They also ensure the enforcement of the Animal Diseases (Control) Decree 10 of 1988. The State Veterinary Services have the direct responsibility for immediate assessment of the outbreak situation. They also have the responsibility to enforce livestock movement control and other quarantine measures while at the same time they carry out investigations on the outbreaks. This is however done with the assistance of the FDLPCS and cooperation of the LGCs.

In the event of any outbreak(s), the Federal and State Governments and even to a certain extent the LGCs, provide funds for the containment of the disease(s). In particular the Federal Government uses National Ecological Funds to tackle the situation before routine release of more funds to contain the disease outbreak.

The introduction of the Emergency Preparedness Plan programme in Nigeria will also mean that the Federal Government shall set aside specific funds on annual basis for the implementation of the programme. Already there are annual allocations for the control of rinderpest, CBPP, small ruminant, swine and poultry diseases. All these are aimed at ensuring that animal diseases are controlled as much as possible.

## 6.2 Epidemiological studies (origin, diffusion)

The outbreaks of Rinderpest in Nigeria in 1980 were traced to the smuggling of trade cattle from Niger Republic. Similarly outbreaks of the disease in 1983 originated from infected animals from the Chad Republic.

During these outbreaks teams comprising the State Veterinary Services, the NVRI and the FDL&PCS Epidemiology Branch participated in the investigations of the outbreaks. The Faculty of Veterinary Medicine, Ahmadu Bello University, Zaria also participated in the investigation of the outbreaks in Sokoto State in 1980. A summary of the epidemiological investigations in the two major outbreaks (1980 and 1983) is given in Annex 23.

## 7. Conclusion

One of the ultimate aims of the Veterinary Services of the Federal Republic of Nigeria is to control and eventually eradicate all major epizootic diseases from the country especially Rinderpest, CBPP, FMD, PPR, African Swine Fever and Newcastle disease. It is for this reason that Nigeria selected these transboundary epizootics as priority diseases.

Nigeria has made concerted effort to follow the OIE guidelines to attain Rinderpest Disease free status. Specifically, we have not vaccinated cattle against rinderpest for over 5 years now and no evidence of rinderpest has been detected either in domestic animals or the wildlife since 1987. Furthermore, the country has maintained a sufficiently adequate disease reporting system, including sending both monthly and annual animal health status reports to the OIE. Effort is being made to improve the scope of the reporting system under the PACE project, including an on-going review of the "Guide to Veterinary Disease Reporting in Nigeria".

It is also noteworthy that all our neighboring countries, whose animals come into regular contact with our national herd, have been declared rinderpest disease free by the OIE.

Thus the basis for Nigeria's application for Rinderpest Disease Free status can be summarized as follows:

- The last reported and confirmed outbreak of Rinderpest in Nigeria was in 1987;
- Nigeria's provisional declaration of freedom from rinderpest disease with effect from 1<sup>st</sup> April 1998, which was done in accordance with the OIE guidelines. This has been acknowledged and published in the OIE Bulletin;

- The stoppage of vaccination against rinderpest and the ban on TCRV production or importation into the country with effect from 1<sup>st</sup> April 1998;
- The establishment and maintenance of a sufficiently adequate disease reporting and monitoring system in the country;
- The establishment and maintenance of International and interstate control posts for the purpose of disease surveillance; and the certification of all animal & animal products import and export from the country.
- The introduction of Epidemio-surveillance network programme and the development of an Emergency Preparedness Plan programme for the country;
- The maintenance of a Vaccine Bank of one million doses of TCRV annually at NVRI, Vom;
- The absence of any evidence of Rinderpest in the Wildlife and the negative serological result of the wildlife capture exercise conducted at the Kainji National Park in February 2003.
- The establishment of the National Emergency Management Agency (NEMA), the National Agricultural Development fund and the Ecological Funds that can be used to cater for all national emergencies including major disease outbreaks;

Nigeria has thus fulfilled all the necessary requirements under the OIE guidelines and is eligible to be declared rinderpest disease free. The country has already set up the process of achieving “rinderpest infection-free status” through the development of a serosurveillance programme for both domestic animals and the wildlife under the PACE project.

## **List of Annexes**

1. Sample copies of Disease Outbreak forms etc
2. Sample of Animal Health Reports
3. Copy of NCA Decision to stop Vaccination against Rinderpest
4. Emergency Preparedness Plan Document
5. Animal diseases (Control) Decree of 1988
6. Sample of State Edit
7. The Veterinary Surgeons Decree No.37 of 1969
8. End of PARC Report
9. List of functional control posts and quarantine stations
10. Summary of Results of Seromonitoring Exercises.
11. Report on Suspected Rinderpest outbreak Investigation in Edo state
12. Report of Suspected Rinderpest outbreak Investigation in ILCA Farm
13. Report of Suspected Rinderpest outbreak Investigation in Katsina state 1997
14. Report of Suspected Rinderpest Outbreak Investigation in Niger state 1996.
15. Summary of Rinderpest laboratory Diagnosis in Nigeria from 1980 - 1987
16. Laboratory Results for 1995 Suspected Rinderpest outbreaks
17. Projected livestock population for 1997 – 2003 on State basis
18. List of different slaughter facilities in Nigeria
19. List of Livestock markets
20. Animals and products imported into Nigeria
21. Quantities of Semen imported into Nigeria
22. Quantities of Biologics imported into Nigeria
23. Report of Epidemiological investigations of Rinderpest outbreaks (1980 & 1983)

## Abbreviations:

1. AU/IBAR = Inter-African Bureau for Animal Resources of the African Union
2. CBPP = Contagious Bovine Pleuropneumonia
3. CIE = Counter Immuno Electrophoresis
4. DVSs = Directors Veterinary Services
5. ECOWAS = Economic Community of West African States
6. EEC = European Economic Community
7. ELISA = Enzyme Linked Immunosorbent Assay
8. FAO = Food and Agriculture Organization of the United Nations
9. FCT = Federal Capital Territory, Abuja, Nigeria
10. FDL&PCS = Federal Department of Livestock and Pest Control services
11. FMD = Foot and Mouth disease
12. GDP = Gross Domestic Product
13. ICE = Immuno Capture ELISA
14. ICA = International Livestock Centre for Africa
15. JP = Joint Project
16. LGAs = Local Government Areas
17. LGCs = Local Government Councils
18. MACBAN = Miyetti Allah Cattle Breeders Association of Nigeria
19. NAPRI = National Animal Production Research Institute, Shika
20. NCA = National Council on Agriculture
21. NVRI = National Veterinary Research Institute
22. NEMA = National Emergency Management Agency
23. OAU = Organization of African Unity
24. OIE = International Office for Epizootics
25. PACE = Pan-African Programme for the Control of Epizootics
26. PAN = Poultry Association of Nigeria
27. PPR = Peste des Petits Ruminants
28. TCRV = Tissue Culture Rinderpest Vaccine
29. TLU = Tropical Livestock Units
30. VCN = Veterinary Council of Nigeria
31. WHO = World Health Organization