



AFRICAN UNION  
**INTERAFRICAN BUREAU  
FOR ANIMAL RESOURCES**



# **NATIONAL STRATEGY FOR THE CONTROL AND ERADICATION OF PESTE DES PETITS RUMINANTS (PPR) IN THE GAMBIA**



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## LIST OF ACRONYMS

AELP	Africa Emergency Locust Project
ARIS	Animal Resources Information System
AU-IBAR	African Union - Inter African Bureau for Animal Resources
BCC	Banjul City Council
CBO	Community Based Organisation
cELISA	Competitive Enzyme-linked Immunosorbent Assay
CFSVA	Comprehensive Food Security and Vulnerability Analysis
CRR N	Central River Region- North
CRR S	Central River Region- South
CVL	Central Veterinary Laboratory
DIVA	Differentiation between Infected and Vaccinated Animals
DLS	Department of Livestock Services
DoP	Department of Planning
ECOWAS	Economic Community of West African States
EU	European Union
FAO	Food and Agriculture Organization
FASDEP	Food and Agriculture Sector Development Project
GANAD	Gambia Agricultural Data Management System
GBA	Greater Banjul Area
GBoS	Gambia Bureau of Statistics
GCES	Global Control and Eradication Strategy
GF-TADs	Global Framework for the Control of Trans boundary Animal Diseases
GDP	Gross Domestic Product
GMD	Gambian Dalasis
GREP	Global Rinderpest Eradication Programme
GVC	Gambia Veterinary Council
GVMA	Gambia Veterinary Medical Association
HPAI	Highly Pathogenic Avian Influenza
IAEA	International Atomic Energy Agency
ITC	International Trypanotolerance Centre
KMC	Kanifing Municipal Council

LNERV	Laboratoire Nationale d'élevage
LRR	Lower River Region
M&E	Monitoring and Evaluation
NA	Not Applicable
NaLOA	National Livestock Owners' Association
NAC-AnGR	National Advisory Committee for the Management of Animal Genetic Resources
NASS	National Agricultural Sample Survey
NBR	North Bank Region
NeMA	National Agricultural Land and Water Management
NGO	Non-Governmental Organization
OIE	World Organization for Animal Health
PACE	Pan-African Program for the Control of Epizootics
PCR	Polymerase Chain Reaction
PMAT	PPR Monitoring and Assessment Tool
PPR	Peste des Petits Ruminants
PPRV	Peste des Petits Ruminants Virus
PPVE	Pre and Post Vaccination Evaluation
PVE	Post Vaccination Evaluation
PVS	Performance of Veterinary Services
RAGs	Regional Advisory Groups
RESEPI	Regional Epidemio-surveillance Network
RESOLAB	Regional Laboratory Network
RFCIP	Rural Finance and Community Initiatives Project
RLD	Regional Livestock Directorate
RT-PCR	Reverse Transcription Polymerase Chain Reaction
RVF	Rift Valley Fever
SOP	Standard Operating Procedure
SPS	Sanitary and PhytoSanitary
SRD	Small Ruminant Disease
TA	Technical Assistance
TAD	Trans boundary Animal Disease
TBD	To Be Determined

TOR	Terms of Reference
URR	Upper River Region
USD	United States Dollar
VACNADA	Vaccines for the Control of Neglected Animal Diseases
VDC	Village Development Committee
VLSP	Veterinary Legislation Support Program
VS	Veterinary Services
WAAPP	West Africa Agricultural Productivity Project
WAD	West African Dwarf Goat
WCR	West Coast Region
WFP	World Food Program

## FOREWORD

Small ruminant production in The Gambia continues to contribute immensely to household food security and is a major source of proteins and income to the economically challenged rural poor. Women and the youth are the main carers of these animals at household level, through a low input-low output system of production. This system is faced with extreme feed and water shortage, as well as diseases, leading to reduced production and productivity.

In order to realize the full potential of the country's small ruminant industry which currently has 500,998 heads, and to attain the Millennium Development Goals 1 and 3 (eradicate extreme poverty, and to empower women), giant strides are needed to combat Peste des Petits Ruminants (PPR), one of the most fatal small ruminant diseases that annually robs farmers approximately GMD 470,078,908.43 (\$USD 10,446,197.97) in production losses due to deaths. The establishment of a strengthened veterinary service delivery system along with the control of other small ruminant priority diseases will greatly enhance increased flock health and annual off take.

The Gambia will continue to work closely with the international community and other partners like the African Union - Inter African Bureau of Animal Resources (AU-IBAR) and the Economic Community of West African States (ECOWAS) in the global fight for the control and eradication of PPR, in line with the joint FAO/ OIE Global Control and Eradication Strategy (GCES).

I take this opportunity to thank AU IBAR for its important role in the preparation of this national PPR control and eradication strategy and to pledge my Government's willingness to support this endeavor to ensure the full implementation of the strategy, as a public good. My government acknowledges the initiatives of the OIE and FAO for coming up with the GCES to enhance the eradication of PPR, as was the case for the Rinderpest disease.

Minister of Agriculture, The Gambia.

Date:



## EXECUTIVE SUMMARY

In The Gambia, the small ruminant population is estimated at 500,998 heads and 89% of rural households raise at least one sheep or goat, with women managing 74% of the goats and 47% of the sheep. These smallholder farmers raise small ruminants and poultry for cash and household consumption. The effect of PPR on income, food and nutrition security, and livelihoods is mainly on poor rural households that mainly depend on their small ruminants.

Peste des Petits Ruminants (PPR), also known as sheep and goat plague, is a highly contagious viral disease of small ruminants characterized by high morbidity and mortality rates. It was first identified in sheep and goats in 1942 in Ivory Coast. Since then the disease has spread to many territories, expanding to previously unaffected regions in just a span of less than two decades. In The Gambia the disease was first indicated as a major problem for the small ruminant population in 1976.

PPR is caused by a Morbillivirus (family Paramyxoviridae) and is closely related to the Rinderpest virus. In a naive flock, the morbidity rate can be up to 90% and the disease can kill up to 80% of infected animals. In The Gambia where the disease is considered endemic, mortality is estimated to be about 50%, representing an approximated annual loss of GMD 470,078,908.43 (\$USD 10,446,197.97). The disease impacts significantly on national economies, food security and livelihoods and is hence considered one of the most devastating livestock diseases in the globe.

In 2012, the Global Framework for the Control and Eradication of Transboundary Animal Diseases (GF-TADs) recommended the inclusion of PPR in the activities of the GF-TADs Working Group with the objective of developing a PPR GCES. In May 2014, FAO and OIE jointly adopted the recommendations for the elaboration of a Global strategy for the control and eradication of PPR. Since then countries have been encouraged to elaborate and align their national strategies for the control and eradication of PPR to the GCES.

In The Gambia, the development of the PPR national strategykick- started following the country's participation in the Regional Road Map meeting held in Dakar, Senegal in May 2016. A series of nationwide stakeholder consultations followed thereafter, with producers and other National stakeholders. A special technical expert meeting on PPR and the internal review of working documents were conducted for the elaboration of the strategy. Subsequently, the PPR national strategy was validated through a broad-based stakeholder validation workshop, involving the National Livestock Policy Hub.

The overall objective underlying this strategy is to enhance a vibrant small ruminant industry that contributes to food and nutrition security as well as improved human health and poverty reduction in the most vulnerable rural communities. The strategy aims to:

- Eradicate PPR by the year 2027.
- Reduce the impact of other small ruminant priority diseases, and
- Strengthen the Veterinary Services (VS).

To ensure the full implementation of the 10-year PPR national strategy, a lot of efforts and resources (both human and financial) are needed. The Government of The Gambia will have to show its political commitment to the strategy and spearhead the resource mobilization drive, first by engaging the Ministry of Finance for the possible inclusion of funding requirements of the strategy into the annual budgetary allocations of the Ministry of Agriculture (MOA), and through Public Private Partnership (PPP) and advocacy efforts. Proposals on the different components of the PPR strategy will also have to be developed for possible funding by different development partners.

The government will also need financial assistance from the donor communities, notably the FAO, EU, OIE and AU-IBAR, at all the stages of the national PPR control and eradication strategy. All on- going in-country agricultural projects and the proposed Small

Ruminant Production Enhancement Project (SRPEP) will be engaged in the drive to control and eradicate PPR.

Technical assistance will also be sought by the government to meet the human capacity need, and for capacity building in the areas of veterinary and animal husbandry,

epidemiology and laboratory technology.

## I. INTRODUCTION

Peste des Petits Ruminants (PPR) is a highly contagious viral disease of small ruminants, also known as sheep and goat plague. It was first identified in sheep and goats in 1942 in Ivory Coast. Since then the disease has spread to many territories, expanding to previously unaffected regions in just a span of less than two decades in the recent past. In The Gambia the disease was first indicated as a major problem for the small ruminant population in 1976.

PPR is caused by a morbillivirus of the family paramyxoviridae and is closely related to the Rinderpest virus. Once infection is introduced in a purely susceptible population, morbidity rates can be up to 90% and the disease can kill up to 80% of infected animals; although in endemic areas this could be lower. In The Gambia mortality is approximately 50%.

The disease impacts significantly on national economies, food security and livelihoods and is hence considered to be one of the most devastating livestock diseases across the globe, including The Gambia, where it produces an estimated loss of GMD 470,078,908.43 (\$USD 10,446,197.97) due to mortalities alone. This has warranted the stepping up of global initiatives to counter its continuous damaging effects. From 2012, the advocacy for the progressive control and eradication of PPR has been going on intensively; this has resulted in the joint FAO/OIE elaboration of a Global strategy for the control and eradication of PPR (GCES). Since then countries have been encouraged to elaborate and align a national strategy for the control and eradication of PPR to the GCES.

The process of elaboration of this strategy began after the country's participation in one Regional Road Map meeting held in Dakar, Senegal. A series of nation-wide stakeholder consultations were conducted with Producers, the National Livestock Owners Association (NaLOA), local authorities, the International Trypanotolerance Centre (ITC), Gambia Veterinary Medical Association (GVMA) and The Gambia Veterinary Council (GVC). Also a special technical experts meeting and internal reviews of working document were conducted for the elaboration of the document.

Subsequently, the Document was validated through a broad-based stakeholder validation workshop spearheaded by the VS.

The purpose of the National strategy is to control and eradicate PPR, the control of other SRDs and the strengthening of the VS.

The objective underlying this strategy is to provide a framework for the progressive control and subsequent eradication of PPR and to minimize the effects of other small ruminant priority diseases (SRDs) which are Pasteurellosis, Rift Valley Fever and Endo/Ecto Parasitism, all in the context of a strengthened Veterinary Services (VS).

## 2. THE RATIONALE FOR PPR ERADICATION IN THE GAMBIA

### 2.1 The Context

#### **Role of small ruminants in the Gambia**

There are about 80,921 agricultural households engaged in small ruminant production, which represents 89% of farming households. Sheep and Goats are by the most marginalized of our society. They play a major role in farmers' income, food and nutrition security and livelihood by providing meat, milk, skins, manure and serve as collaterals for loans. Sheep and goats also play a significant role in fulfilling socio-cultural and religious obligations.

With climate change, the local breeds (Djallonke sheep and West African Dwarf goat) continue to be the most resilient and by virtue of their relative prolificacy (being short-cycle species), they have the potential to contribute significantly to the increased demand for livestock products, i.e. meat, milk and skins.

#### **Impact of PPR**

PPR is considered endemic and present in all parts of the country with a massive socio-economic impact on the income, livelihood and food and nutrition security of Gambians. Although there has not been any formal impact assessment of PPR in the country, farmers' perceptions indicate that about 50% of their animals are lost

in suspected PPR outbreaks representing a loss of GMD 470,078,908.43 (\$USD 10,446,197.97).

In 2016 an average mortality rate of 2.45% (based on limited and scanty data) was registered. This represented a total of 14,063 deaths that were associated with PPR, representing an average monetary value of GMD 28,134,789.34 (USD \$580,098.75). Other losses due to PPR are generally associated with decreased product quality, reduced production and productivity, although these are seemingly difficult to quantify.

The previous control programmes through vaccination and passive surveillance conducted by the Government of The Gambia for the control of PPR have been estimated at a cost of GMD 2,000,000 (USD \$45,000) per nation-wide mass vaccination campaign annually.

### ***Global and regional approach***

Globally and regionally, there is an increased importance attached to PPR control and eradication and therefore The Gambia, inline with its national and international commitments, is required to fulfill its obligations in controlling and eradicating PPR as a public good.

Lessons learnt from the Global Rinderpest Eradication Programme (GREP), which led to the eventual eradication of Rinderpest, indicated that it was possible to eradicate an animal disease on a global scale. The combination of a strengthened participatory surveillance system leading to an improved epidemiological understanding of the disease; coupled with routine mass vaccination campaigns using highly efficacious vaccines, made the GREP successful. The continuous training and re-training of veterinarians and para-vets staff ensured the establishment of efficient Veterinary Services (VS). Awareness building among livestock owners and strong channels of communication between VS and livestock owners were central in the GREP.

The GREP strategies and activities mentioned above will be fully incorporated in the PPR national strategy to make possible the eradication of PPR in The Gambia by 2027.

### 2.1.1 Basic Information on The Gambia

The Gambia is the smallest country on mainland Africa situated between latitudes 13°N and 14°N and longitudes 14°W and 17°W. The Gambia has a total area of 11,295 km<sup>2</sup> with a unique geographic characteristic provided by the 480 km long River Gambia. This divides the country into two banks (North and South.). The Republic of Senegal borders the country on all its three sides while the Atlantic Ocean is found on the western side. The country's population is estimated at 1,882,450 people, with a density of 176 persons/km<sup>2</sup> as reported by the Population and Housing Census, 2013<sup>1</sup> and with an inter-censal growth rate of 3.3% per annum, its projected in 2017 to be 2,143,506 people and doubles to 3.8 million people in 2034. It is characterised by its youthful nature, practically children, with 44% being under the age of 15 years. The majority (58%) of the population lives in the urban area and 42% in the rural areas and is projected by 2020, 65% of the population will live in the urban areas and 35% in the rural.

LOCATION MAP OF THE GAMBIA

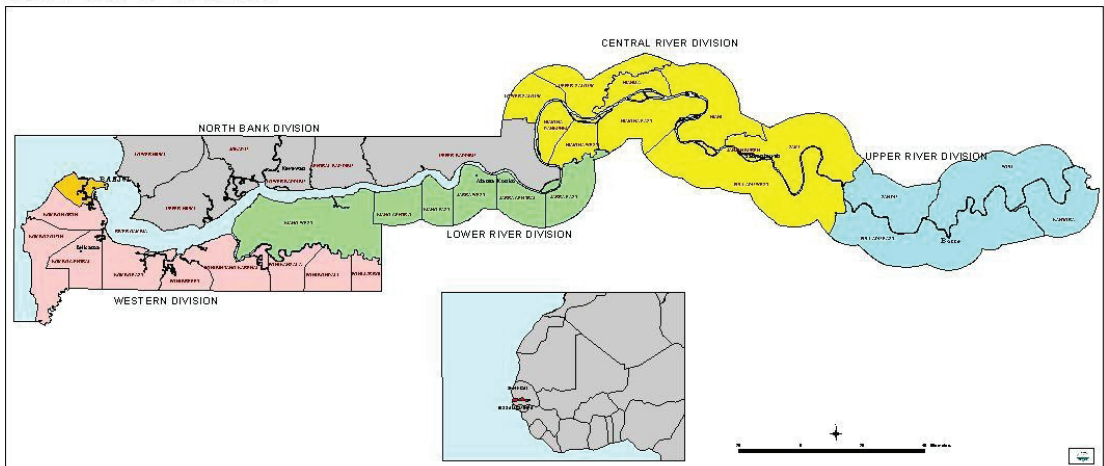


Fig. 1: Map of The Gambia. Source: (<http://www.ezilon.com/maps/images/africa/political-map-of-Gambia.gif>).

The climate is purely sub-tropical with marked rainy season between the months of June and October and dry season between November and May<sup>2</sup>. Average temperatures range from 18°C to 30°C during the dry season and 23°C to 33°C during the rainy season. Generally, in the dry season, relative humidity is 68% along the coast and 41%

<sup>1</sup>Republic of the Gambia, 2013 population and housing census, Preliminary results, Banjul; 2014. Nations Development Programme. UNDP Project ID PIMS 5000 / GEF Project ID PMIS 5529.

<sup>2</sup>Project Document: Gambia Protected Areas Network and Community Livelihood Project. 2015. Government of The Gambia & United Nations Development Programme. UNDP Project ID PIMS 5000 / GEF Project ID PMIS 5529.

inland, whereas during the rainy season it is about 77% throughout the country. Annual rainfall ranges from 850mm to 1500mm. Recent years have seen erratic and inadequate distribution of rainfall in the country<sup>2</sup>.

The Gambia is characterised by its small economy in which agriculture, industry, tourism, re-export trade, remittance inflows and services, are the major contributors. The national economy is highly vulnerable to external shocks such as poor harvests, regional and global economic crisis e.g. the West African Ebola crisis in 2015. The Gambian economy heavily depends on the agricultural sector, which accounts for about 40% of export earnings and 30% of the GDP in which the livestock sub-sector contribute about 9%. The agricultural sector employs about 75% of the rural population, out of which 78% are working women and 22% men. Furthermore, about 91% of the extremely poor and 72% of the poor in The Gambia are in the agricultural sector, thus the need for investments in this sector in order to raise income, improve food security and reduce poverty, especially at the rural level<sup>3</sup>.

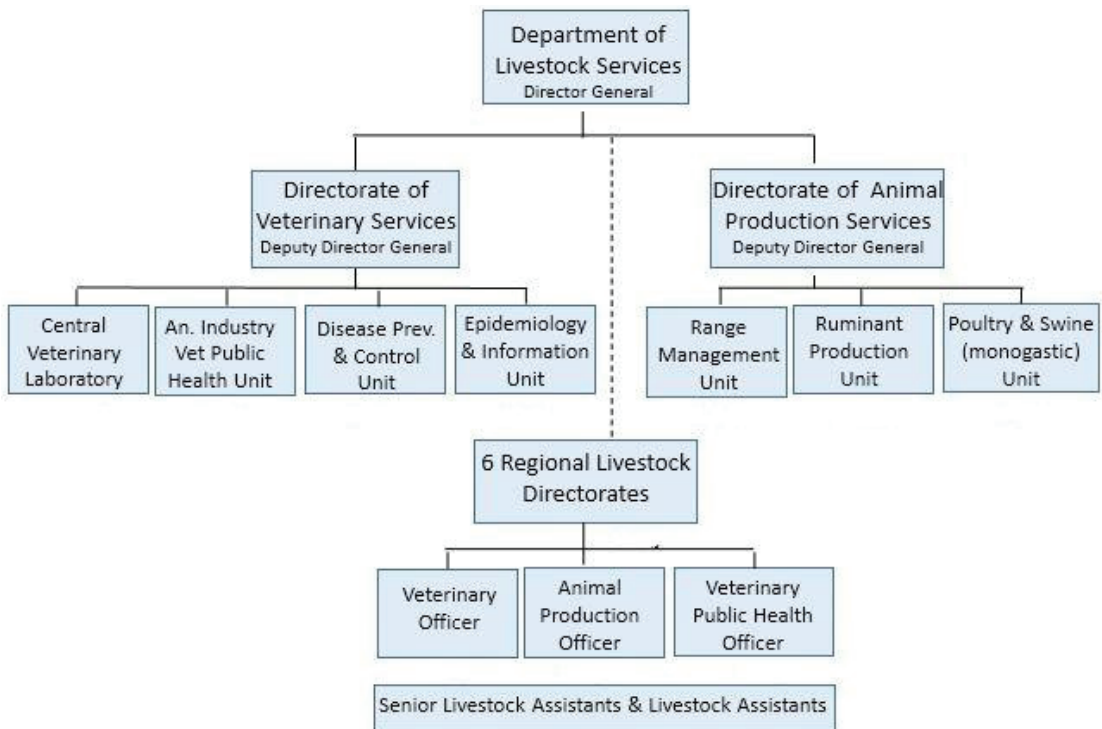
Administratively, The Gambia is divided into five regions, namely: WCR, LRR, NBR, CRR and URR, headed by Governors with two Municipal Councils (BCC and KMC) headed by Mayors. Each region is divided into districts, which are headed by chiefs. Six agricultural regions exist that correspond to the administrative regions with CRR being further divided into North and South. These are headed by directors (RAD and RLD).

The Department of Livestock Services (DLS) is the technical arm of the Government of The Gambia under the Ministry of Agriculture responsible for veterinary service delivery, as mandated by the Diseases of Animals Act 1944 as amended, CAP 62:03, in the Common Laws of The Gambia. It was originally established in the 1930s but underwent a series of transformations. The current structure of the DLS is shown in figure 2 below:

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<sup>3</sup>Republic of the Gambia: Poverty Reduction Strategy Paper 2007-2011. Department of State for Finance and Economic Affairs. Banjul, November 2006.





**Fig. 2.** Organogram of The Department of Livestock Services

(Source: Veterinary Legislation Support Programme: Report of The Veterinary Legislation Identification Mission to The Gambia, 2 to 6 May 2016)

## 2.1.2 Small Ruminant production systems

The farming system involves a diversity of crop and livestock production with a variety of cereals, leguminous crops, and vegetables and fruit trees. The livestock species include sheep, goats, cattle, pigs, bees and poultry. Most livestock-rearing households have 29.8% goats, 9.2% sheep, 16.6% poultry, and the remaining 15.2%, cattle<sup>4</sup>. Usually sheep & goats benefit from better housing conditions than cattle. These animals are housed in open kraals or pens with roof or stable with roofs in 67% of the farm households during the rainy season<sup>5</sup>. Sheep & goats are left to freely roam around and graze on natural pastures, or herded or tethered during the rainy season. Roughages constitute mainly the feeding regimens of these small ruminants with very little or no supplementation. Apart from natural pastures, groundnut hay is the second most

<sup>4</sup>Somda, J., Kamuanga, M., Münstermann, S., Bittaye, A., 2003. Socio-economic characterization of smallholder dairy systems in The Gambia: Milk production, marketing and consumption. Socio-economic research Working Paper 1. ITC (International Trypanotolerance Centre), Banjul, The Gambia

<sup>5</sup>ILRI, 2010. Sustainable Management of Globally Significant Endemic Ruminant Livestock in West Africa: Gambia Baseline Report. ILRI Nairobi.

important feed resource, followed by cereal bran. Acute feed shortages of up to 31% have been common in the past 10 years among these small ruminant livestock households.

In general, mating is uncontrolled and is realised at random using the rams and bucks found in the same flocks. There is a marked seasonal pattern of parturition with births all year round. The breeds used in this type of system are mostly Djallonke; the Sahelian and crosses between Djallonke and the Sahelian are also common. The main breed of goat used is the West African Dwarf (WAD) with a small percentage consisting of Sahelian or Sahelian crosses.

### 2.1.3 Population and distribution of PPR susceptible species

The most recent data on the population of small ruminants in the country is that from the census of 2016. The total number of sheep and goats and their distribution across the various regions of the country is as reflected in Table I below:

**Table I:** Distribution of Sheep & Goats population by Region and farming system

Region	Sheep	% Sheep	Goats	% Goats	Farming system
Banjul City Council	409	0%	166	0%	Intensive & Semi-extensive Free range
Kanifing Municipal Council	4922	3%	3920	1%	Intensive & Semi-extensive Free range
West Coast Region	23325	14%	66667	20%	Semi-extensive Free range
Lower River Region	11852	7%	26462	8%	Semi-extensive Free range
North Bank Region	21771	13%	60306	18%	Semi-extensive Free range
Central River Region-North	18912	11%	46588	14%	Semi-extensive Free range
Central River Region-South	29461	17%	38294	12%	Semi-extensive Free range
Upper River Region	62010	36%	85933	26%	Semi-extensive Free range
Totals	172662		328336		
<b>Total National</b>				<b>500998</b>	

Source: 2016 Livestock Census Report

### 2.1.4 PPR Risk Factors along the small ruminant value chain.

Livestock marketing has a very complex dynamics from farm gate to the fork with various intermediary and financial transactions. The direct buyers from the farm gate are usually the dealers (*Tefankas*/Middlemen). This involves a network of middlemen that usually collect these small ruminants on credit basis with transfer of ownership of about 3-5 middlemen before it reaches the consumer. The market chain of sheep & goats is especially of importance especially during "*Tobaski*" (Islamic feast). There is marketing of sheep & goats throughout the year, with marked seasonal variation in pricing of the animals. Higher prices are fetched during "*Tobaski*" and post cash crop harvest periods, when large numbers of small ruminants are sold. Prices are fairly lower in the rainy season and hence smaller volumes of trading in the small ruminant population. Prices are determined by farm location and distance from the secondary and terminal livestock markets. They are lower at farm gate and increase as one moves towards the terminal markets, and therefore favoring a flow of trade in sheep & goats from the interior of the country towards the Capital, Banjul and the GBA. The holding grounds (*Daraals*) around abattoirs or slaughterhouses are usually markets for sheep & goats destined for slaughter in those abattoirs or slaughterhouses as well as buyers for religious and social ceremonies. The offtake for sheep and goat, based on numbers sold, and slaughtered for household consumption, is 22% and 25%, respectively<sup>6</sup>. The livestock dealers mentioned above are also perceived to play an important role in the spread of infectious diseases such as PPR<sup>7</sup>.

The livestock market chain with its key players at each level, is as shown below:

#### 1. Primary (collection) markets- Farm gate:

- Producers to Producers – for stock replacement and fattening.
- Producers to Local butchers – for slaughter.
- Producers to Traders – for re-sale in secondary/ regional markets.
- Producers to Individuals/ Groups – for traditional ceremonies, funerals, weddings and religious gatherings.

<sup>6</sup>Touray O., Ceesay M., Njai O. 2010. REVIEW OF THE LIVESTOCK SECTOR WITH RESPECT TO SMALLHOLDER DAIRY AND LIVESTOCK AND MEAT SUB-SECTORS DEVELOPMENT IN WEST

AFRICA. Commissioned by: Food and Agriculture Organization (FAO), The Gambia.

<sup>7</sup>Saliki J.T. 2015. Overview of Peste des Petits Ruminants. The Merck Veterinary Manual Online.

[http://www.merckvetmanual.com/mvm/generalized\\_conditions/peste\\_des\\_petits\\_ruminants/overview\\_of\\_peste\\_des\\_petits\\_ruminants.html?qt=ppr&alt=sh](http://www.merckvetmanual.com/mvm/generalized_conditions/peste_des_petits_ruminants/overview_of_peste_des_petits_ruminants.html?qt=ppr&alt=sh). Access online: Thursday, August 18, 2016 4:39:11 PM.

## **II. Secondary (distribution) markets - Lumos:**

- Traders to local butchers – for slaughter.
- Traders to traders –for resale in terminal markets

## **III. Terminal markets (Abuko, Banjul and Brikama):**

- Traders to local slaughterhouse and butchers
- Traders to butchers –for slaughter.
- Traders to Individuals/ Groups/ Organizations –for slaughter and re-stocking.

In consideration of the fact that a large percentage of small ruminants slaughtered in The Gambia come from Senegal, the movement of small stock into The Gambia is a daily event. Weekly livestock markets (lumos) are found along the 749 km of land border on either side of the two countries. From these lumos, there is an internal movement of animals by butchers, traders, farmers and individuals to secondary markets and other towns and villages, for slaughter and restocking. In addition, a proportion of purchased animals are moved from these lumos directly to the terminal markets in the urban and periurban areas. Also during the Muslim feast of Eid-ilAdha (Tobaski), a significant number of small ruminants (mostly rams) are purchased from these terminal markets by individuals for slaughter back home at villages/towns. There are socio-cultural practices that entail the movement of small ruminants between families as gifts, and in fulfillment of traditional marriage rites (dowry) and other ceremonies (naming, wedding). All these can be considered as risk factors for PPR.

Annually, during the dry season (December to June), large flocks of sheep and goats enter The Gambia from northern and occasionally southern Senegal into the districts of Sami, Niani, Nianija in the CRR-N and the three districts of Niaminain CRR-S, in search of pasture and water. A similar movement of small ruminants into Senegal also takes place from the southern parts of CRR and URR. These animals traverse the whole of these regions, mixing freely with resident flocks. A large proportion of small ruminants also do originate from the Republics of Mali and Mauritania but have to pass through Senegal. This happens mostly during Eid-ilAd ha.

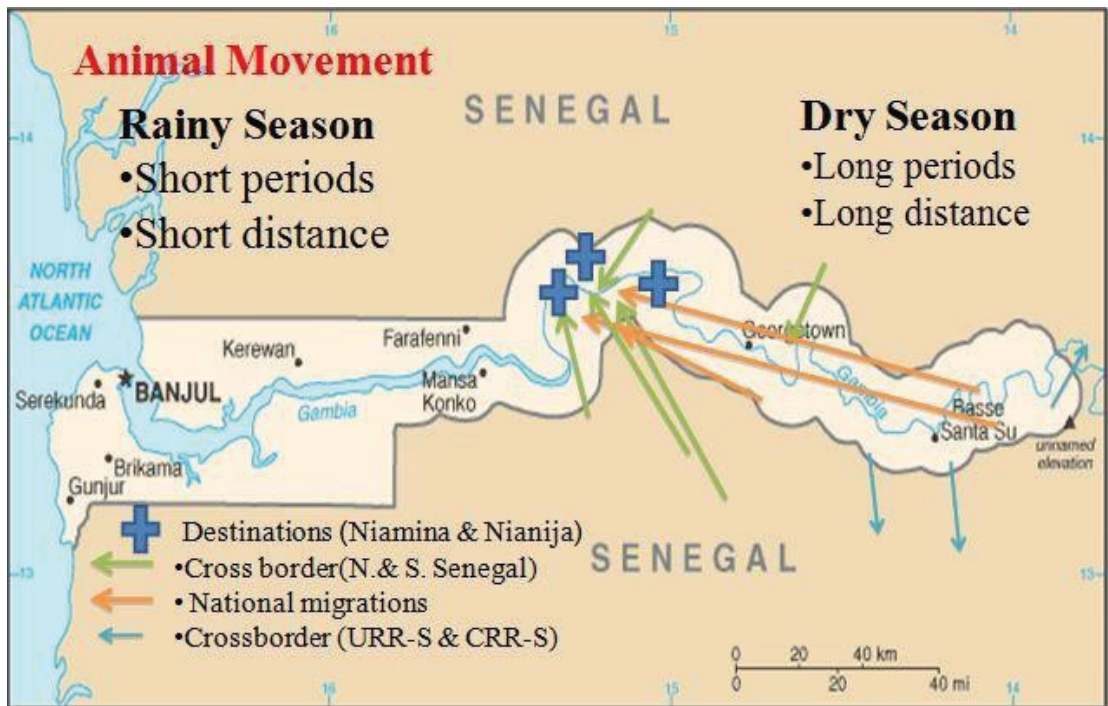


Figure 4: Movement patterns of Sheep and Goats in the Gambia.

## 2.2 Current Status and Impacts of PPR

### 2.2.1 Current PPR-GCES stage

Currently, The Gambia has realised the assessment to enter into Stage I of the Global Control and Eradication Strategy (GCES) using the PMAT questionnaire. The PPR monitoring and Assessment Tool (PMAT) leaves The Gambia on the assessment stage, stage I of the GCES; further thorough assessment is needed to be carried out by the Regional Advisory Groups (RAGs) to further establish the current status of The Gambia with respect to the Global Strategy.

### 2.2.2 PPR situation in the country and in neighbouring countries/region

According to the Animal Husbandry and Production Division report published in July 1976, PPR was nominated as the major sheep and goat disease problem in The Gambia and was believed to originate from Senegal<sup>8</sup>. Subsequently, in July 1993, a paper was published by a team of scientists from Pirbright, UK who detected PPRV antibodies using a monoclonal antibody-based competitive ELISA (c-ELISA) technique in sheep

<sup>8</sup>Animal Husbandry and Production Division Report, July 1976.

and goat sera from The Gambia<sup>9</sup>. Table 4 below shows the results obtained from the 13 samples processed from sheep and goats in The Gambia.

**Table 2:** Rinderpest and PPR c-ELISA results from the examination of Gambian sheep and goat sera collected in Niamina District before and after vaccination against rinderpest, 1994

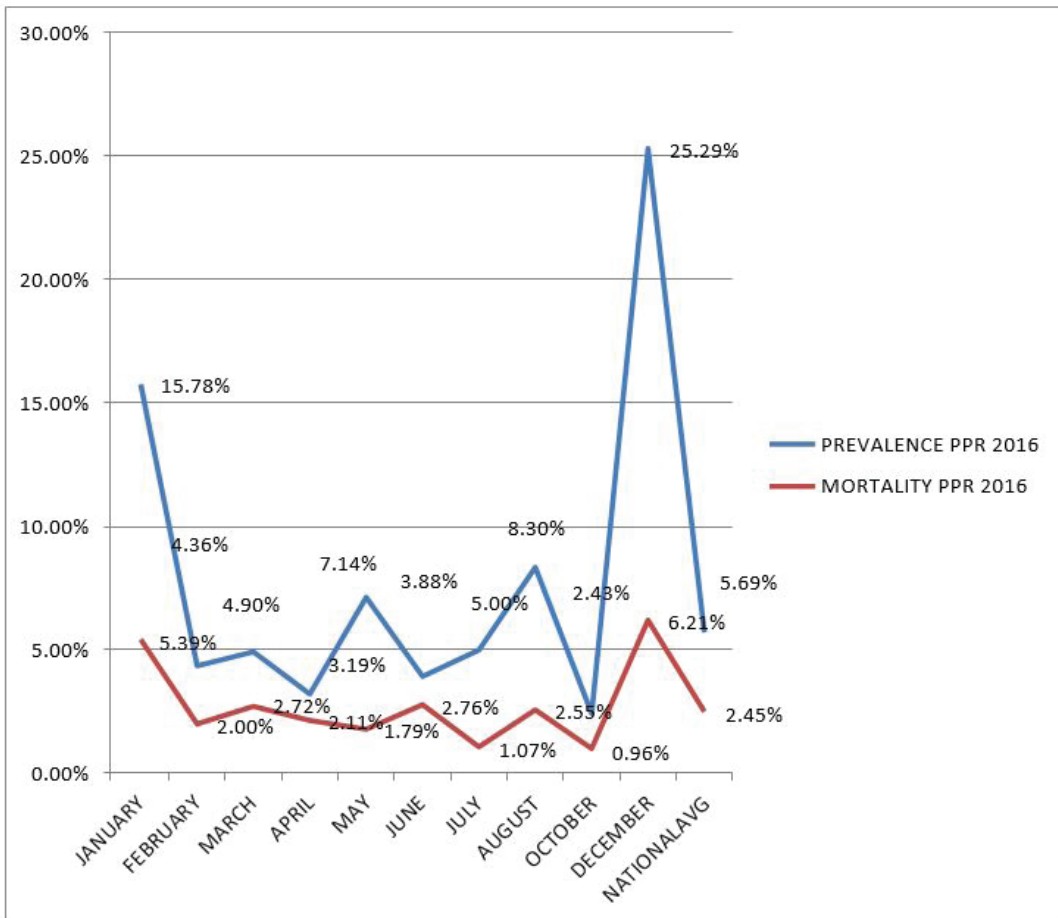
Sample number	Rinderpest C-ELISA		PPR C-ELISA	
	Pre-vaccination	Post-vaccination	Pre-vaccination	Post-vaccination
1	–	+	–	–
2	–	–	+	+
3	–	–	+	+
4	–	+	–	–
5	–	–	+	+
6	–	–	+	+
7	–	–	+	+
8	–	–	+	+
9	–	–	+	+
10	–	–	IS*	IS
11	–	–	+	+
12	–	+	–	–
13	–	–	+	+

\* Insufficient sample.

Recently, based on the monthly reports submitted (severe under-reporting and scanty data) to DLS HQ in 2016, a trend was observed in the prevalence of PPR, from 2.43% in October, just at the end of the rains, and a sharp increase in November-December to 25.29% and 15.78% in January (figure 4). From the same figure, it can also be seen that in the remaining months the range is generally from 3.19% to 8.30% and the national average in 2016 was 5.69%. Similarly, mortality rates vary from 0.96% to 6.21% with national average mortality in 2016 being 2.45%.

There is a severe under reporting of animal diseases in The Gambia, and PPR is no exception, due to inadequate human and financial resources required to run an efficient VS. This data was only collected in very few localities of the six agricultural regions in the year 2016 by the Department of Livestock Services where there are field workers and is a representation of the PPR disease situation and projections may be made from it to understand the greater picture.

<sup>9</sup>Anderson, J. & McKay, J.A. (1994). The detection of antibodies against peste des petits ruminants virus in cattle, sheep and goats and the possible implications to rinderpest control programmes. *Epidemiol Infect* 112, 225–231.



**Figure 4:** Monthly Prevalence and Mortality Rates of PPR in The Gambia in 2016 with the National Average.

Furthermore, in 2016 the occurrence of PPR in The Gambia was measured through reported number of outbreaks, number of cases and deaths as represented in Figure 5 & 6 below. There is a marked trend of seasonality of PPR in 2016. The month of May is the point of convergence of the drops in number of cases, deaths and new outbreaks from the preceding months and a steady increase in the ones that follow. During this year, a total of 86 outbreaks were reported and 35 of them were new outbreaks with 925 cases and 399 deaths.

PPR is believed to be endemic in the ECOWAS sub-region and has been reported by all member states to the AU-IBAR in 2011 and the following years routinely. Senegal being our only immediate neighbor is also known to be reporting PPR as shown in the AU-IBAR report.



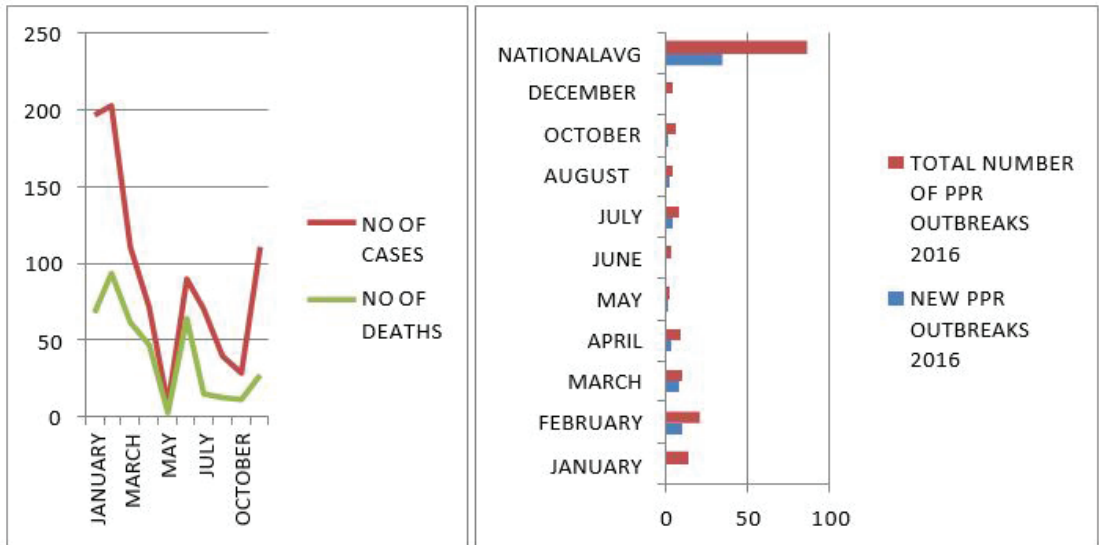


Figure 5: No. of PPR cases & deaths Figure 6: New & Tot. No. of PPR outbreaks 2016

Table 3: PPR hotspots based on number of animals affected and frequency of outbreaks

Name of place (village)	Location	Species	Production system.	Season
Mali-Kunda, Choya	Niamina West, CRR-S	Goats	Traditional free roaming system	Dec-Jan.
Jammagen	Jokadu, Lower Badibu, NBR	Sheep & Goats	Traditional free roaming system	Dec- Jan.
Kayai, Tobe n, Sukuta,	Sami & Niani, CRR-N	Sheep & Goats	Traditional free roaming system	Sept-Oct; June, July
Berefet, Sare Mot, Sare Bojo,	Jimara and Kantora, URR	Sheep & Goats	Traditional free roaming system	Nov- Dec; June, July
Bureng, Buiba, Jalangberih, Senoba	Jarra East, Central and West, LRR	Sheep & Goats	Traditional free roaming system	Nov-Dec, May-June
Jarrol	Fonijarrol, WCR	Sheep & Goats	Traditional free roaming system	Dec- Jan.
Gunjur	Kombo south, WCR	Sheep & Goats	Traditional free roaming system	Dec- Jan.
Joreng	Fonijarrol, WCR	Sheep & Goats	Traditional free roaming system	Dec- Jan.
Sintet	Fonijarrol, WCR	Sheep & Goats	Traditional free roaming system	Dec- Jan.
Brikama surroundings kunda, jambanjelly, Kity)	Kombo central, WCR	Sheep & Goats	Traditional free roaming system	Dec- Jan.



In the Gambia, the most important hotspots for PPR are highlighted in the Table 3 above. These are mainly based on the frequency of clinical outbreaks.

### 2.2.3 Impact of PPR

In The Gambia, the small ruminant population is estimated at 500,998 heads and 89% of rural households raise at least one sheep or goat; women manage 74% of the goats and 47% of the sheep. These smallholder farmers raise small ruminants and poultry for cash and household consumption. The effect of PPR on income, food and nutritional security and livelihoods, is mainly on poor rural households that are mainly dependant on their small ruminant. Table 4 below indicates the annual income generated by these families in The Gambia through sales of Sheep and Goat.

**Table 4:** Annual Sales of sheep and goats by the Key Stakeholder (Women) in The Gambia

No of HHolds Selling SM	Live-stock Spp.	No. Sold	No Home slaughter	No sold/ Holder	Avg/ Animal (GMD2)	Avg./ Holder	Total Value	Female Beneficiary share
17,535	Sheep	26,132	32,000	1	1,316.00	1,962.00	34,401,743.00	16,168,819.00
21,912	Goat	57,374	48,620	3	913.00	2,390.00	52,363,169.00	38,748,745.00
	TOTAL						<b>86,764,912.00</b>	<b>54,917,564.00</b>

Source: 2007 NASS and own calculations. 1: Value of animals sold. 2: GMD = Gambian Dalasi. 1 US\$ equivalent to GMD 27.02 (Central Bank of The Gambia, March 2010)

Generally, in The Gambia the morbidity and mortality rates of PPR are the main direct costs placed on the farmers' income and livelihood. In 2016, an average mortality rate of 2.45% was registered and based on this, a total of 14,063 deaths are associated with PPR. The average animal value is GMD 1,876.57 (USD \$ 41.25) giving a total of GMD 28,134,789.34 (USD \$580,098.75) yearly losses. Other losses due to PPR are generally associated with decrease product quality, reduced production and productivity and are seemingly difficult to quantify.

The control and eradication of PPR in The Gambia will benefit the women smallholder farmers through reducing direct losses due to PPR mortalities and hence increasing their incomes and livelihoods through the annual sale of small ruminants. Table 6 above gives an indication of the benefits of PPR eradication in the Gambia on its women stakeholders.

## 2.3 Current Capacity and Activities to Control PPR

### 2.3.1 Laboratory diagnostic system

The laboratory system consists of a Central Veterinary Laboratory (CVL) at the headquarters and four regional labs that are located in the regional directorates of livestock across the country. The regional labs are non-functional and there is no established network for PPR diagnosis. Some lab personnel at the CVL have been trained on PPR Elisa technique but there are no trained lab personnel at the regional labs. There is a dire need to build the capacity of staff along the detection-diagnosis chain of PPR. This will involve training staff at field level on the recognition of PPR and its differential diagnosis as well as collection of samples, storage and sending from the field to the CVL.

### 2.3.2 Surveillance system

Inherited from the PACE programme, the surveillance system in place has suffered a serious decline due mainly to lack of resources. The system depended mainly on its passive component (a network making use of contact farmers and sanitary defense committees) for the major livestock diseases suspected of being present in the country. This includes PPR of which no active surveillance (serological) has ever been carried out by the veterinary services, however pre and post vaccination sampling were conducted during the VACNADA project implemented with support from AU-IBAR. Inspection at the abattoirs / slaughter slabs is done on a daily basis for most of the ruminant animals that are destined for human consumption.

There is no structured implementation program for a quantitative or qualitative risk analysis for the major diseases in the country and this includes PPR. No formal risk assessment has ever been carried out for PPR. In the past, a risk assessment was conducted for HPAI with the help of external support. However, considering the trans-boundary nature of PPR, it could be deduced that animal (small ruminants) concentration/gathering points are high-risk areas and thus hotspots for PPR outbreaks. In The Gambia, these include some major border points with the Republic of Senegal and weekly markets (lomos) especially those close to the borders. Farmers are likely to transport their sick animals to the latter for sale.

### **2.3.3 Control and Prevention**

Probably because of its widespread distribution during outbreak peaks and other resource constraint factors, PPR outbreaks were hardly investigated in the past. Following reports of suspected cases, farmers are usually advised to implement biosecurity measures; some of which are adhered to, whilst others are less heeded to due to the extensive (free range) production system practiced by farmers in The Gambia. The porous nature of the borders with Senegal and our close socio-cultural ties make it difficult for movement control in these areas. Veterinary para-professionals are usually stationed in the major entry points of the country for inspection and issuance of movement permits to animals entering the country.

For some time now a national vaccination program for PPR has not been implemented in the country. Few mass vaccination campaigns and targeted vaccinations have however been conducted in the past with the help of donor-funded projects (VACNADA, AELP, RFCIP FASDEP and WAAPP). Antibiotic treatment against secondary infection is usually given in suspected cases.

### **2.3.4 Legal framework**

The legislation guiding veterinary activities in The Gambia leaves a lot to be desired. The diseases of animals act 1944 seriously needs updating while other acts of veterinary significance have implementation deficiencies (Medicines Act, 1984, Veterinary Council Act, 2000). There is also a veterinary related act, the Food Safety Act, 2005, but it is also not very clear with respect to enforcement of regulations related to veterinary issues. There is therefore a need to update the Diseases of Animals Act, 1944 with clear definition of roles with respect to enforcement of regulations, and the enactment of other legislations that reflect present day situations.

### **2.3.5 Stakeholders' involvement**

Livestock keepers are quite engaged in disease control activities as is evident in the epidemio - surveillance network where contact farmers and community sanitary defense committees occupy key positions in the network. This however needs to be developed further as the arrangement had recently suffered a decline due to resource constraints. The recent upsurge of livestock producer associations and the subsequent creation

of an umbrella body, the National Livestock Owners Association (NaLOA), need to be recognized and their relationship with the veterinary sector made more formal. Other bodies and key players along the livestock value chain, notably the NAC-AnGR, SPS Committee, processors, traders and butchers should be engaged more. In the same vein, local authorities, other government institutions, private veterinary practitioners, the veterinary association and NGOs need to be fully engaged with clearly defined roles for the implementation of PPR prevention and control activities. Information flow between the national VS and other stakeholders like livestock policy hub need to be improved especially from the former.

## *2.4 Other Small Ruminant Priority Diseases (Current Status and Prospects for Control) (Component 3 of the PPR-GCES)*

Apart from PPR, other diseases have been known to cause significant losses in the small ruminant sector of the Gambia. These include both infectious and non-infectious diseases. Pasteurellosis is one such disease that is considered endemic in the country. Historically vaccination against this disease has been combined with mass vaccination campaigns against PPR although individual private vaccinations are common among small ruminant keepers irrespective of mass vaccination campaigns. It has always been a general perception in the country that control efforts against PPR alone leave an increase in incidence of Pasteurellosis in small ruminants. Rift Valley fever has also been a common problem in the past; there was an outbreak of the disease in November 2002 in CRR in humans, which necessitated the planning and implementation of donor (IAEA) supported serological surveys by DLS. Some samples in small ruminants were found to be positive for RVF. As a result, the diagnostic capacity has been strengthened through support from IAEA. Following a reported outbreak in Mauritania in 2010, RVF surveillance was intensified in The Gambia and samples were collected countrywide and sent to the reference laboratory (LNERV) in Dakar as part of a sub-regional surveillance initiative. All samples were negative

Other diseases that are known to have insidious effects on our small ruminants include endo- and ecto-parasitic diseases and Heart water. Livestock keepers seem to understand the devastating effects these have on the productivity of their animals.

Deworming campaigns have been successful in the past when the VS, through sensitization mechanisms, advocated for adherence of livestock owners to a proposed deworming calendar. This practice has however declined in the recent past.

### **3. ORGANISATION OF VETERINARY SERVICES (COMPONENT 2 OF THE PPR-GCES)**

#### ***The role of the Public and Private Veterinary services***

The VS of The Gambia consist of the Department of Livestock Services (DLS) and the private sector veterinary service. The latter comprises of five companion animal veterinary clinics located in the peri-urban area of the country and one non-governmental organization that operates in both the rural and peri-urban areas. This is in addition to individual veterinarians and para veterinarians that operate in different areas around the country. The national VS are headquartered at the capital region with its peripheral branches (Regional Directorates) across the country. The frontline extension workers (livestock assistants and auxiliaries) of the VS are found at district level in major towns and/ or villages. A recent (three years ago) restructuring has given rise to the re-establishment of a single line of command from the central to the peripheral level of the VS. There are only two veterinarians within the national VS, who are both at the headquarters (Director General and Deputy Directors General).

Despite the weak state of the epidemio-surveillance network (following the phasing out of the Pan African Control of Epizootics programme –PACE), the passive surveillance carried out has been able to detect outbreaks of suspected PPR cases over the years. Field staff, which consists mainly of veterinary para professionals posted at strategic locations across the country, submits monthly and annual reports to the headquarters. The involvement of private veterinary services in reporting disease outbreaks including PPR, is however minimal.

PPR control initiatives in the country have no established structured program albeit a highly suspected endemic situation. In the past few decades, control activities have been carried out through donor-funded projects; these were in the form of nationwide mass vaccination campaigns. Also in few occasions, targeted spot vaccinations have been a

feature of control efforts against PPR. In all cases, the lead role is played by the national veterinary service with little involvement of the private veterinary service (private para professionals). Where the latter is involved, it is mainly during the nationwide mass vaccination campaigns in which they form part of the vaccination teams.

In addition to the above indicated players in the control and prevention of PPR; veterinary input suppliers also play a key role in helping in the sourcing of vaccines. The health facilities across the country also help in the maintenance of cold chain especially during the mass vaccination campaigns by providing cold storage facilities. Livestock farmers, especially those that are members of producer organizations also play an important role in reporting diseases. Village animal health workers (Livestock auxiliaries) are also engaged during vaccination campaigns as part of the vaccination teams.

### ***OIE PVS pathway missions to The Gambia***

The veterinary services of the country has gone through the initial OIE PVS Evaluation (2009) with a subsequent Gap Analysis (2012) and VLSP mission (2016) as indicated in table 5 below. These were in response to an initial request from The Government of The Gambia to the OIE for an evaluation of her VS using the PVS tool. Some of the key findings of the initial evaluation include the following:

- A severe shortage of veterinarians and field veterinary professionals
- Ineffective line of technical authority
- Inadequate budgetary allocation for veterinary field operations
- Limited capacity of the country's VS to respond to livestock disease emergencies
- Need for improvement in the legal framework and stakeholder engagement.

The gap analysis report highlighted the following:

- The need for strengthening the staff capacity of the VS
- The need for reconstituting the field veterinary network
- The need to increase the presence of veterinarians in the field
- The need for developing inspection resources

Subsequently, a Veterinary Legislation Identification Mission was conducted as is indicated in table 5 below:

**Table 5:** OIE missions to The Gambia

	<b>Date when conducted</b>	<b>Level of confidentiality*</b>	<b>Comments (if any)</b>
OIE PVS initial evaluation	October 6th 15th 2009	Not shared with any other country	
OIE PVS Follow up evaluation			
PVS gap analysis	28th May to 8th June 2012	Not shared with any other country	
Veterinary Legislation Identification Mission	2nd to 6th May 2016	Not Shared with any other Country	Authorization is given to OIE to share with OIE group, partners and Donor
Other OIE capacity building activities(laboratory mission; twinning programmes)			

## 4. PPR STRATEGIC ERADICATION FRAMEWORK

In line with the GCES, this strategy will not focus only on PPR control and eradication. While its ultimate objective is to eradicate PPR, measures will also be simultaneously taken to address some of the challenges associated with other small ruminant diseases that are of economic importance to The Gambia. It is a recognized fact that diseases/disease conditions such as Pasteurellosis, Rift Valley Fever and endo and ecto-parasites seriously affect small ruminant production in the country. Hence the opportunity presented by PPR control and eradication will be used to significantly minimize the effects of these diseases/disease conditions. In the same vein, the strategy is intended to also address issues surrounding the performance of the VS of the country as control and prevention programs can only be effective and sustainable if they are based on efficient VS that comply with the quality standards described in the OIE Terrestrial Animal Health code (Chapters 3.1 and 3.2). These are few of the guiding principles that will underpin this strategy in line with the GCES. Other guiding principles will include the adoption of a risk-based approach, adaptive management, building effective partnerships and being part of a regional approach.

The proposed timeframe for the implementation of this strategy is 10 years. This is based on the fact that there is a poor understanding of the epidemiological situation of the PPR in The Gambia, as well as poor diagnostic capacities and overall weak state of the Gambian VS as indicated in the PVS Gap Analysis of The Gambia.

### 4.1 *Guiding Principles and Tools*

#### 4.1.1 **Risk based approach**

Based on the outcomes of the assessment in the first stage, gaps in knowledge of the actual PPR situation of The Gambia will be addressed and therefore a risk based approach may be applied based on the hotspots such as large annual small ruminant gatherings, changes in trading and movement patterns that may be coupled with the bi-annual mass vaccination campaigns. Although the surveillance will provide this information, in the context of the assumed endemic nature of the disease in The Gambia targeted or risk based approach may be applicable in the instance mentioned above.



#### **4.1.2 Cross border approach**

The geographical location of The Gambia dictates the need for a very close collaboration with The Republic of Senegal and hence the need for a harmonised approach with respect to PPR epidemio-surveillance and other prevention and control activities. Sharing of sanitary information through cross border meetings will be encouraged, in addition to the synchronization of vaccination campaigns and joint border animal movement control.

#### **4.1.3 Control of other national priority Small Ruminant Diseases (SRDs)**

This strategy will not only focus on the PPR control and eradication, but also, the simultaneous control of Pasteurellosis, RVF and Ecto and Endo Parasitism will be carried out. These will maximise the use of scarce resources. The control measures for other SRDs will include vaccination and treatment of ecto and endo parasites.

#### **4.1.4 Self-Sustaining Mechanisms for Animal Health Services Delivery**

Implementation activities aimed at the control of PPR and other SRDs implies a strengthened VS is to be in place. Hence specific activities will be carried out to enhance the capacities of the VS. These will include building the capacities of both the field and lab staff as well as strengthening the epidemio-surveillance and Lab networks. A strong collaboration with key stakeholders will be maintained.

#### **4.1.5 Adaptive Management**

As implementation of the strategy progresses, activities will be re-aligned based on lessons learnt from previous stages. Also lessons learnt from previous control programmes such as PARC/PACE, VACNADA and SPINAP-AH would be utilised.

#### **4.1.6 Partnerships**

The Gambia will continue to work closely with national stakeholders, the international community and other partners like the African Union - Inter African Bureau of Animal Resources (AU-IBAR) and Economic Community of West African States (ECOWAS) in the global fight for the control and eradication of PPR and priority SRDs.

## 4.2 Results Framework

### 4.2.1 Overall Objective

A vibrant small ruminant industry that contributes to food and nutritional security as well as improved human health and poverty reduction, through economic growth, notably among rural farmers.

### 4.2.2 Specific objectives

- To eradicate PPR by the year 2027
- To reduce the impact of other major small ruminant diseases.
- To strengthen the veterinary services.

### 4.2.3 Expected outputs and activities

The expected outputs are:

- Laboratory diagnostic capacity is strengthened.
- Surveillance strengthened
- Prevention and control is strengthened
- Legal framework for Animal Health Amended
- Stakeholder participation in strategy implementation is ensured

In line with the GCES and Pan African control strategy, this strategy will apply the step-wise approach, which recognizes four stages in the control and eradication of PPR.

## **STAGE I (EPIDEMIOLOGIC AND SOCIO-ECONOMIC ASSESSMENT)**

As shown in the previous sections of this document, the epidemiological situation of PPR in The Gambia is not precisely understood; although all indications are that the disease is present. The prevalence and distribution of the disease are not well known. The Gambia is thus placed at stage I. At the moment therefore, the country aims for a better understanding of the PPR epidemiological situation. It will implement surveillance activities with the aim of determining the health status of small ruminants, prevalence, distribution and occurrence of PPR. Another objective of the surveillance at this stage will be to determine the focus of PPR prevention and control activities. The following activities will be the focus of this stage:

- Strengthening of the national epidemio-surveillance net-work (training and involving all stakeholders)
- Building capacities in laboratory and field diagnostics
- Passive reporting and syndromic surveillance
- Training in risk and value chain analysis
- Studies on economic impact of PPR in different production settings
- Participatory disease surveillance
- Mark out geographical areas, production systems at high risk
- Establish a committee to oversee/coordinate the implementation of all activities related to PPR control and eradication
- Develop effective communication strategy for effective participation of all stakeholders
- Value chain analysis of the small ruminant sector
- Preparation of a comprehensive risk based control strategy, focusing mainly on vaccination

This stage is envisaged to last for 3 years when, after successfully going through the set of evaluation tools (Pan African PPR strategy, M&E and PMAT), the country will fall into Stage 2.

## STAGE 1 ENABLING ENVIRONMENT (COMPONENT 2)

During this period the VS will endeavour to acquire accepted levels for all the OIE PVS critical competencies relevant to PPR control and eradication as shown below:

**Table 6:** Target levels of advancement for OIE PPR relevant Critical competencies (Stage 1)

O IEPVS critical competencies	Gambia OIEPVS level of advancement (PVS gap analysis report 2012)	Target level of advancement
CCI.2.A Professional competencies of Veterinarians	2	3
CC I.3 Continuing education (CE)	2	3
CCII .I.A Veterinary laboratory diagnosis – Access to veterinary laboratory diagnosis	1	2

O IEPVS critical competencies	Gambia OIEPVS level of advancement (PVS gap analysis report 2012)	Target level of advancement
CC II .1.B Veterinary laboratory diagnosis – Suitability of national laboratory infrastructure	1	3
CC II .3 Risk analysis	1	3
CC.II .5.B Epidemiological surveillance and early detection – Active epidemiological surveillance	2	3
CC III .2 Consultation with interested parties	2	3
CC III .3 Official representation	2	3
CC III .4 Accreditation / authorisation/ delegation	1	3

### **STAGE I COMBINING CONTROL ACTIVITIES WITH OTHER SMALL RUMINANT DISEASES (COMPONENT 3)**

For the purpose of maximising on scarce resources, simultaneous implementation of activities aimed at gathering information on PPR, will also be conducted on Pasteurellosis, RVF and Endo and Ecto parasitism to determine their epidemiological situation. It is important to note that some of the activities mentioned in stage I above can also be of relevance to the control of other small ruminant diseases e.g, designing a laboratory information management system, formulating SOPs on handling of field samples and strengthening the epidemio-surveillance network by implementing active surveillance.

It is envisaged that, by the completion of this stage the following would have successfully been fulfilled:

- All planned activities of stage I are successfully completed.
- A comprehensive report on stage I produced, detailing the identified hotspots, risk factors for the PPRV and value chain analysis of small ruminant industry.
- Holistic and realistic control strategy developed as enshrined in the GCES.

## STAGE 2 (CONTROL)

The approach to be taken in stage 2 will be based on the findings of the epidemiologic a I situation obtained during the implementation of stage I activities in the country.

The activities to be conducted in this stage will include:

- Train laboratory staff on PCR diagnostic techniques and sample preparation for molecular characterization.
- Equip the CVL and ITC labs to have molecular diagnostic capacity.
- Establish and regularly update Standard Operating Procedures for PCR diagnostic techniques.
- Establish written protocols to define criteria to select samples eligible for being processed using PCR techniques.
- Test all submitted samples meeting the eligible criteria for PCR diagnostic techniques.
- Participate in international proficiency test led by either an OIE International Reference Laboratory or ECOWAS Regional laboratory designated as leading laboratory in the regional network.
- Train meat inspectors/ abattoir staff in slaughterhouses in PPR disease recognition, sample collection, storage and submission to the CVL.
- Design procedures to improve collaboration and coordination with DPWM for improved reporting of PPR cases in wildlife.
- Organize an awareness campaign on PPR for livestock producers, dealers and butchers.
- Participate in Regional Epidemio-surveillance Network activities RESEPI and RESOLAB feed the Network with appropriate sets of data and Establish a Senegal - Gambia Surveillance network.
- The National PPR Committee appoints a specific Working Group to design field vaccination Procedures
- Train field vaccination teams.
- Implement field vaccination.
- Conduct PPVE with collection of data for evaluating the results of the vaccination programme and monitor the whole vaccination chain, accordingly.
- Review current diseases outbreak investigation forms and update, if necessary.

- Conduct investigations for all detected/reported outbreaks, whether invaccinated or unvaccinated sheep and goat populations.
- Implement movement controls between the vaccinated and non-vaccinated animals in close collaboration with the Security Services (Police).
- Organise meetings of specific working groups (mixed VS, other authorities, and stakeholders) to better understand the impact of control measures (including financial aspects) on stakeholders and upgrade the legislation framework to support field control activities
- Propose concrete amendments to update the legal framework conducive to efficient PPR prevention and control.
- Prepare and disseminate informative material to increase awareness among livestock farmers and thereby facilitate reports of suspected cases.
- Prepare advocacy communication material to explain and convince all stakeholders particularly farmer that control of PPR is needed.
- Organize meetings with the livestock farmers and their partners active in the field (NGOs, CBOs, VDCs and Producer Associations)

In Stage 2, the focus of surveillance will be on the early detection of PPR and monitoring of epidemiological parameters like Prevalence, Incidence, Distribution and Occurrence, based mainly on passive surveillance. Both mass and targeted vaccination exercises will be the focus of the control strategy, with PVE to evaluate efficacy, efficiency and progress of the campaigns. This stage is envisaged to last for 3 years.

## **STAGE 2 ENABLING ENVIRONMENT**

The enabling environment will be created by making the VS to acquire accepted levels for all the OIE PVS critical competencies relevant to PPR control and eradication as per GCES based on the OIE PVS Evaluation Report, October, 2009 as shown below:

**Table 7:** Target levels of advancement for OIE PPR relevant Critical competencies

O IEPVS critical competencies	Gambia OIEPVS level of advancement (PVS gap analysis report 2012)	Target level of advancement
CC I.1.A Professional and technical staffing of the VS – Veterinarians and other professionals	1	3
CC I.1.B Professional and technical staffing of the VS – Veterinary para-professionals and other technical staff	3	3
CC I.2.B Competencies of veterinary para-professionals	3	3
CC I.6 .A Coordination capability of the VS – Internal coordination (chain of command)	2	3
CC I.6.B Coordination capability of the VS – External coordination	2	3
CC I.7 Physical resources	2	3
CC I.8 Operational funding	1	4
CC I.11 Management of resources and operations	/	4
CC II.5.A Epidemiological surveillance and early detection – passive epidemiological surveillance	3	3
CC II.7 Disease prevention, control and eradication	2	3
CC II.8B Ante- and post mortem inspection at abattoirs and associated premises	1	4
CC III.1 Communication	3	4
CC III.6 Participation of producers and other interested parties in joint programmes	2	3

## **STAGE 2: COMBINING CONTROL ACTIVITIES WITH OTHER SMALL RUMINANT DISEASES (COMPONENT 3)**

During this stage, while vaccinations are carried-out for PPR, control activities (vaccinations, deworming and vector control) will also be simultaneously conducted for Pasteurellosis, ecto and endo parasites and RVF.

After successfully completing all activities of stage 2, and a national eradication strategy is developed, The Gambia will move to Stage 3 (Eradication stage).

## **STAGE 3 (ERADICATION)**

In stage 3, both passive and active surveillance will be carried out, although efforts will be more concentrated on the passive surveillance. The objectives of the surveillance in this stage are:

- To enable early detection of possible PPR incursion
- To account for the new introduction of the virus, monitor the results of the immediate response and to provide a roadmap for possible adjustment of the prevention and emergency response plan, if suitable.
- To demonstrate the absence of PPR clinical disease or infection

The vaccination strategy to adopt in this stage will depend on the outcomes of stage 2. A mass vaccination program can either be continued for another year or a targeted vaccination may be used to focus on areas that may appear as hotspots. The latter will highly be considered if there is high risk of introduction from the neighboring republic of Senegal. The decisions will depend solely on the results of the PMAT and PVE.

PVE will be used to assess the level of protection in vaccinated animals, the vaccine distribution system and the level of decrease and progress in the disappearance of PPR outbreaks and PPRV circulation. The PVE will require the implementation of activities aimed at achieving desired outcomes of the above stated issues.

In accordance with the provisions of the OIE terrestrial animal health code (chapter 1.6), the Gambia will prepare and submit its control program to the OIE for official endorsement.



In this stage, the following activities will be carried-out:

- Increase the collection of sero-surveillance data from wildlife and other susceptible species
- Implement vaccination campaigns in areas where virus still circulates (in already vaccinated areas and/or in unvaccinated areas) according to results obtained from the continuous monitoring and evaluation of Stage
- All vaccinated animals will be identified at the same time
- Conduct surveillance activities and PVE with collection of data for evaluating the results of the vaccination programme and monitor the entire vaccination chain accordingly
- Develop a contingency plan approved by the Veterinary Authorities. The National PPR Committee will assign a group of experts (which could be supported by international experts if required) to formulate such a contingency plan.
- Implement a quality control system in the central laboratory and its branches constituting the laboratory network in the country, and develop all procedures related to the manipulation and testing of samples for PPR virus according to the standards of a quality assurance scheme
- Implement collateral procedures to ensure that stocks of reagents, laboratory devices, equipment, etc. are purchased following quality assurance procedures in laboratories involved in PPR diagnosis.
- Establish procedures to capture PPR health events in neighboring countries or those from which animals are imported. The group dedicated to qualitative Risk Assessment already identified in Stage I should conduct this work.
- Design and implement surveillance in those subpopulations or areas where the events can be captured and misinterpretation is minimized.
- Test the correct application of the contingency plan through field simulation exercises as part of the activities to maintain a high level of awareness.
- Carry out prompt preliminary precautionary measures once suspicion is raised (they are withdrawn if the outbreak is not confirmed or are immediately followed up if the outbreak is confirmed).
- Implement prompt measures to contain virus spread once an outbreak is confirmed (whether this should be based on animal movement restrictions, culling or emergency vaccination, or a combination of these, is a country policy choice).

- Design and implement field procedures to officially close an outbreak and lift the restrictions put in place. This is to be done by the National PPR Committee.
- (Voluntary) Submit a national control programme to the OIE for official endorsement, in accordance with the provisions of the OIE Terrestrial Animal Health Code (Chapters 1.6. and 14.7)
- Conduct cross-border harmonization meetings with Senegalese counterparts.
- Develop a procedure to compensate farmers whose animals were culled for disease control purposes.
- The National PPR Committee may appoint a Specific Working Groups to develop such a procedure).
- Carry out studies on how to improve biosecurity in live animal markets and at farm level and how biosecurity can impact on stakeholders.
- The National PPR Committee may appoint Specific Working Groups to do this.
- Carry out feasibility studies to implement an animal identification system.
- Propose concrete amendments to update the existing legal framework conducive to supporting the new control measures foreseen in Stage 4 (Compensation scheme, biosecurity, animal identification); in addition, legal provisions for suspending/stopping the vaccination are also included.
- Establish a specific procedure (by the National PPR Committee) to address issues raised by a specific group of stakeholders concerning matters relating to PPR control/eradication that may impact on their business activities.
- Address specific requests from stakeholders (by the National PPR Committee, with the possible support of Working Groups).
- Distribute communication material, use media and other oral means and organize specific meetings aimed at updating all stakeholders, including development partners active in the field (e.g. NGOs), where the country stands in its national efforts towards eradication, and ensure their full and sustained support

### **STAGE 3 ENABLING ENVIRONMENT (COMPONENT 2)**

In this stage, the country will endeavor to ensure that the VS has the authority and capacity to institute aggressive control measures to eradicate PPR throughout the country and to maintain in this situation by being able to address any emergencies. Thus the VS will be strengthened to acquire the relevant critical competencies as per the GCES shown below:

**Table 8:** Target levels of advancement for OIE PPR relevant Critical competencies

OIE PVS critical competencies	Gambia OIE PVS level of advancement (PVS gap analysis report 2012)	Target level of advancement
CCII.2 Laboratory quality assurance	1	2
CC II.12.A Identification and traceability – Animal identification and movement control	2	3

### STAGE 3 COMBINING CONTROL ACTIVITIES WITH OTHER SMALL RUMINANT DISEASES (COMPONENT 3)

The adopted mass vaccination strategy against PPR will be simultaneously used to effect control measures against the identified small ruminant diseases. Other general activities highlighted above for PPR are also geared towards addressing challenges posed by other diseases.

After successfully completing all activities of stage 3, and with neither vaccinations conducted nor clinical outbreaks registered in the previous 12 months, The Gambia will move to the post- eradication stage (Stage 4).

### STAGE 4 (POST ERADICATION)

At this stage, the epidemiological situation of the country is characterized by absence of circulating PPR virus in domestic sheep and goats with very low incidence of PPR often associated with entry from other countries. Main focus of this stage is to show with evidence that after suspension of vaccination, there is no clinical disease or circulating virus within at least 12 months. Eradication and prevention measures would be based on early detection and reporting of any new outbreak occurrence, emergency response and contingency planning. Vaccination is prohibited. If emergency vaccination needs to be implemented, the whole national territory will be downgraded to Stage 3.

The strongest focus of surveillance at this stage would be to provide evidence that the Gambia is free from disease/infection, with the aim of obtaining official OIE recognition of free status, to leave the PPR step-wise approach. Surveillance would be conducted in compliance with the provisions of OIE Terrestrial Code Chapter 14.7 (Articles

14.7.29., 14.7.30. and 14.7.31. in relation to surveillance requirements for Member Countries applying for OIE recognition of PPR free status).

Another aim is to detect any new PPR outbreak occurrence and to provide epidemiologic a l guidance for the management of the emergency response. The different animal sub-populations would be categorized on the basis of the level or risk of exposure to PPR virus in order to adapt the prevention and emergency response plans.

Since there will be no vaccination, no PVE will be done. The following activities will be carried out in this stage:

- Produce (and keep updated) a flowchart to indicate how suspected cases of PPR are handled and differentiated from other similar diseases.
- Train laboratory staff in differential diagnosis of PPR
- Identify, list and collate all PPRV-containing material and identify appropriate premises for its secure sequestration (in the future it may be destroyed)
- Organize training sessions to make field veterinarians fully aware of where the country is now in relation to the eradication process
- Conduct cross-border harmonization meetings with our Senegalese counterparts.
- Design and implement specific studies aimed at proving that the cohort of animals born after the suspension of vaccination has not been exposed to the PPR virus (likely to be done through serology targeting the birth cohort of animals born after cessation of the vaccination in accordance with procedures indicated by the OIE for being recognized as officially free)
- Implement, when relevant, additional clinical inspection and serological testing of high- risk groups of animals following an alert, such as those adjacent to a PPR-infected country.
- In the event of an outbreak, implement the provisions of the contingency plan.
- Increase collaboration with the Customs services at borders to optimize border control
- Conduct risk analysis on a regular basis
- Submit a dossier to the OIE requesting official recognition of PPR free status, in accordance with the provisions of Chapters 1.6. and 14.7. of the OIE Terrestrial

### Animal Health Code

- Upgrade the legal framework, notably to ensure that it will include the necessary preventive and control measures foreseen in Stage 4 (in particular exclusion measures aimed at avoiding introduction of PPR virus from abroad)
- Organize meetings with groups of stakeholders to acquaint them with the status of the country and ensure that they are aware that any suspicion of PPR is to be treated as an emergency.
- Prepare and disseminate informative material in order to maintain a high level of awareness among livestock keepers and other stakeholders

## STAGE 4 ENABLING ENVIRONMENT (COMPONENT 2)

The VS would have the necessary authority and capacity to prevent the entry of PPR from neighboring countries. When applying for an OIE official status for PPR freedom, PPR must

be a notifiable disease in the whole territory and proper notification to the OIE (CC IV.6) should operate (early reporting mechanism based on immediate notification).

**Table 9:** Target levels of advancement for OIE PPR relevant Critical competencies

OIE PVS critical competencies	Gambia OIE PVS level of advancement (PVS gap analysis report 2012)	Target level of advancement
CC.I.9 Emergency funding	2	4
CC.II.4 Quarantine and border security	1	3
CC.II.6 Emergency response	2	4
CC.IV.6 Transparency	2	3

## STAGE 4 COMBINING CONTROL ACTIVITIES WITH OTHER DISEASES (COMPONENT 3)

The combination of PPR control and eradication activities with control for RVF and helminth infestation would be assessed to determine improvements made in addressing these other diseases. Results of this assessment may lead to additional activities to control RVF and helminth infestations.

#### **4.2.4 Coordination, Management, and partnerships**

Successful implementation of the national PPR control and eradication strategy will have to rely on an effective and efficient management and coordination structure. There will also be a need to build partnerships with relevant stakeholders especially the private sector.

- **Subcomponent 4.2.4.1: National level**

Implementation of the strategy will make use of the existing institutional structure at the ministry of Agriculture (MoA) with the Department of Livestock Services (the VS) taking the lead role; the Permanent Secretary of the MoA will chair a steering committee that is to be established. A national PPR committee will be set up to coordinate all activities related to PPR prevention and control. This committee will be closely linked to the Livestock Policy Hub. The modus operandi of the committee will be clearly spelt out. The CVO, being the head of the VS will coordinate the implementation of the identified activities. The DDGs, veterinary services and production will closely work with the CVO and head specially created technical subcommittees (consisting of veterinarians, laboratory technicians, vet. Public health officers, epidemiologists etc.) at central level. Focal points will also be identified to head different components at central level. The committees to be set up will include members from other line ministries and other non-governmental stakeholder institutions thus:

- Ministry of Interior,
- Ministry of Local Government, Lands and Regional integration.
- Ministry of Finance and Economic Affairs
- Ministry of Environment,
- The Gambia Veterinary Council
- The Gambia Veterinary Association
- The Gambia Horse and Donkey Trust
- The National Livestock Owners' Association

At regional level, similar structures will be established. These will specifically include the following:

- Some members of the Technical Advisory Committees (TAC)
- Members of the Multi-disciplinary Facilitation Teams (MDFTs)

- District Authorities (Chiefs)
- Village authorities (Alkalolus)
- Action Aid The Gambia and other Non-Governmental Organizations
- Wulli and Sandu Development Agency
- The National Livestock Owners' Association

The above structures will ensure the full involvement of stakeholders. Also during the first phase of the strategy implementation, standard operating procedure will be formulated and implemented for a response mechanism in case of a suspected outbreak.

- ***Subcomponent 4.2.4.2: With Regional partners and programmes***

The Gambia will collaborate closely and partner with the Republic of Senegal in the implementation of PPR prevention and control measures. The Gambia will endeavour to harmonize its vaccination programs with those of Senegal. Cross border meetings will be held to discuss issues surrounding movement control of animals across the border. Sanitary information will be shared between the two countries. The epidemio-surveillance and laboratory networks will collaborate through networking meetings. The area of capacity building will also be exploited; Arrangements will be made to enable laboratory personnel of the CVL to attend short term training courses at LNERV. Similar collaborative efforts will be extended to the other ECOWAS member states for an effective implementation of PPR control measures. As a member of the OMVG, the Gambia will participate in this body's meetings and will push for PPR control to be given top priority in its Agenda.

- ***Subcomponent 4.2.4.3: With Pan-African and Global partners and programmes***

The Gambia will continue to seek for both technical and financial enhancement from both its traditional and non-traditional partners. Specifically, assistance will be sought for building the capacity of the laboratory and epidemio-surveillance staff. Technical assistance will also be sought for the strengthening of our laboratory facilities. For these, the following organizations will be engaged:

- Economic Community of West African States (ECOWAS)

- African Union Inter-African Bureau for Animal Resources (AU-IBAR)
- World Organization for Animal Health (OIE)
- Food and Agriculture Organization (FAO)
- World Bank (WB)
- European Union (EU)

The country will have to demonstrate its full commitment to the successful implementation of the strategy by creating the enabling environment for the above partners. This includes ensuring that there is a strong political will.

## **5. MONITORING AND EVALUATION**

The Gambia missed the first PPR road map meeting in Cote d'Ivoire but attended the Dakar meeting. It is however yet to participate and complete RAGs assessments.

The supplementary five-year action plan to this National PPR strategy will establish progress indicators for all the activities to be implemented and will guide monitoring and evaluation in a logical frame based on the PMAT tools and always harmonising activities and evaluations with Senegal. The VS will be responsible of the monitoring and evaluation of the PPR strategy.

In line with GCES, the assessment tools such as the PMAT & PVE will be used to monitor and evaluate the process and progress of the implementation of activities linked to PPR control and eradication. In addition, the veterinary services will avail itself to be assessed and evaluated in accordance with OIE PVS pathway. This will be done every two to three years for the PPR specific competencies and other critical competencies. The progress on the control of other Small Ruminant Diseases like Pasteurellosis, Rift Valley fever and Ecto- and Endo-parasitism in the case of the Gambia, will also be evaluated and the overall socio-economic impact analysed.



## 6. ESTIMATED BUDGET

Items	Description	Quantity	Unit Cost USD	Total Budget USD	Estimated Budget													Provisional Budget to Achieve Eradication USD
					STAGE 1			STAGE 2			STAGE 3			STAGE 4				
					Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10				
Epidemiology and surveillance				517900														4577200
Equipment	Computers (PC)	6	250	1500	X						X							3000
	Printers	6	150	900	X						X							1800
	IT packages and programmes	3	300	900														
	Photocopiers	7	1000	7000	X						X							14000
	Tablets	120	300	36000	X													36000
	GPS	120	100	12000	X													12000
	Mobile Phones	200	25	5000	X				X									10000
	Data cards	6	100	600	X					X								1200
	Thermometers	120	10	1200	X				X		X							4800
	Stethoscope	120	30	3600	X				X		X							14400
	Wt Scales	120	25	3000	X					X								9000
	Sub-total			70800														106200
Travel and Per-diem	LAs Night allowances (nights)	14400	25	360000	X	X	X	X	X	X	X	X	X	X	X	X	X	3600000
	LAs Fuel (Litres)	72000	1	72000	X	X	X	X	X	X	X	X	X	X	X	X	X	720000
	HQ Night allowances (nights)	140	25	3500	X	X	X	X	X	X	X	X	X	X	X	X	X	35000
	HQ Fuel (Litres)	800	1	800	X	X	X	X	X	X	X	X	X	X	X	X	X	8000

Items	Description	Quantity	Unit Cost USD	Total Budget USD	Estimated Budget												Provisional Budget to Achieve Eradication USD
					STAGE 1			STAGE 2			STAGE 3			STAGE 4			
					Y 1	Y 2	Y 3	Y 4	Y 5	Y 6	Y 7	Y 8	Y 9	Y 10			
	RD Night allowance (nights)	360	25	9000	X	X	X	X	X	X	X	X	X	X	X	90000	
	RD Fuel (Litres)	1800	1	1800	X	X	X	X	X	X	X	X	X	X	X	18000	
	Sub-total			447100												4471000	
Vaccination				541692												1912752	
Vaccines	PPR Vaccine & Diluent (doses)	900000	0.15	135000	X	X	X	X	X	X	X	X	X	X	X	405000	
	Pasteurellosis Vaccine & Diluent	900000	0.15	135000	X	X	X	X	X	X	X	X	X	X	X	540000	
	Sub-total			270000												945000	
Drugs	Ivermectin	4500	12	54000	X	X	X	X	X	X	X	X	X	X	X	216000	
	Cypermethrin (pour-on) Litres	0	0	0	X	X	X	X	X	X	X	X	X	X	X	0	
	Antimicrobials	5000	7	35000	X	X	X	X	X	X	X	X	X	X	X	140000	
	Wound dressings	900	7	6300	X	X	X	X	X	X	X	X	X	X	X	25200	
	Sub-total			95300												381200	
Vaccination equipment & Materials	Syringes & needles 5ML	112000	0.12	134400	X	X	X	X	X	X	X	X	X	X	X	537600	
	Boots	240	7	1680	X	X	X	X	X	X	X	X	X	X	X	3360	
	Rain coats	240	10	2400	X	X	X	X	X	X	X	X	X	X	X	4800	
	Overalls	240	12	2880	X	X	X	X	X	X	X	X	X	X	X	5760	
	Sub-total			141360												551520	

Items	Description	Quantity	Unit Cost USD	Total Budget USD	Estimated Budget													Provisional Budget to Achieve Eradication USD
					STAGE 1			STAGE 2			STAGE 3			STAGE 4				
					Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10				
Field vaccine delivery	Solar freezers & solar power kit	14	2000	28000	X											28000		
	Refrigerators	14	310	4340	X											4340		
	Cool boxes large	6	78	468	X											468		
	Cool boxes medium	14	56	784	X											784		
	Cool boxes small	120	10	1200	X											1200		
	Icepacks	120	2	240	X											240		
	Sub-total			35032												35032		
Communication				65247												400350		
	Sensitization meetings	65	335	21775	X	X	X	X	X	X	X	X	X	X	X	217750		
	TV programmes	2	556	1112	X	X	X	X	X	X	X	X	X	X	X	11120		
	Radio programmes and jingles	30	56	1680	X	X	X	X	X	X	X	X	X	X	X	16800		
	Billboards	8	335	2680	X											2680		
	Posters	5000	7	35000	X			X					X			140000		
	T-shirts	500	6	3000				X	X	X						12000		
	Sub-total			65247												400350		
Laboratory				24000												226500		
Diagnostic kits	ELISA based techniques kits	30	650	19500	X	X	X	X	X	X	X	X	X	X	X	195000		
	ELISA reader & PC with Accessories	1	1500	1500	X											1500		
	Sub-total			21000												196500		

Items	Description	Quantity	Unit Cost USD	Total Budget USD	Estimated Budget										Provisional Budget to Achieve Eradication USD
					STAGE 1		STAGE 2		STAGE 3		STAGE 4				
					Y 1	Y 2	Y 3	Y 4	Y 5	Y 6	Y 7	Y 8	Y 9	Y 10	
					X	X	X	X	X	X	X	X	X	X	
Expendable equipment	Lab consumables for diagnostic tests	1	3000	3000	X	X	X	X	X	X	X	X	X	X	30000
	Sub-total			3000											30000
Training/studies/research				597400											2987000
	Training of professional	20	25500	510000	X	X	X	X	X	X	X	X	X	X	2550000
	Training of technical staff	1	46000	46000	X	X	X	X	X	X	X	X	X	X	230000
	Other trainings	1	40000	40000	X	X	X	X	X	X	X	X	X	X	200000
	Training materials	1	1400	1400	X	X	X	X	X	X	X	X	X	X	7000
	Sub-total			597400											2987000
Other non-expendable equipment				178000											887000
	Tags	350000	0.5	175000	X	X	X	X	X	X	X	X	X	X	875000
	Tags applicator	200	10	2000	X	X	X	X	X	X	X	X	X	X	10000
	Notchers	200	5	1000	X	X	X	X	X	X	X	X	X	X	2000
	Sub-total			178000											887000
Other expendable equipment				7500											75000
	Stationaries	1	5000	5000	X	X	X	X	X	X	X	X	X	X	50000
	Cartridges	1	2500	2500	X	X	X	X	X	X	X	X	X	X	25000
	Sub-total			7500											75000

Items	Description	Quantity	Unit Cost USD	Total Budget USD	Estimated Budget													Provisional Budget to Achieve Eradication USD	
					STAGE 1			STAGE 2			STAGE 3			STAGE 4					
					Y 1	Y 2	Y 3	Y 4	Y 5	Y 6	Y 7	Y 8	Y 9	Y 10					
General Operating Expenses (GOE)				2000															20000
	Misc. items	1	2000	2000	X	X	X	X	X	X	X	X	X	X	X	X	X	X	20000
	Sub-total			2000															20000
Mobility ( motor cycles and vehicles)				408000															1054000
	Motobikes	50	3400	170000	X					X									340000
	Pickup trucks	7	34000	238000	X					X									714000
	Sub-total			408000															1054000
Contingency		1	301364	301364															1507989
<b>TOTAL</b>				<b>2,643,103.00</b>															<b>13,647,791.00</b>

## 7. RESOURCE MOBILIZATION

The Government of The Gambia through the Ministry of Agriculture (MOA) will lead stakeholders in engaging the Ministry of Finance for the inclusion of funding requirements of the strategy into the annual budgetary allocations of the MOA. In addition, members of the National Assembly and other key decision makers will be engaged to promote advocacy efforts. These will guarantee political commitment and the provision of national resources to support the sustainable implementation of the PPR control and eradication strategy. Proposals will also be developed on the different components of the PPR strategy and used to seek for possible funding by different development partners

Based on the outcomes of the OIE PVS Evaluation (2009), OIE PVS Gap Analysis (2012), and Veterinary Legislation Support Mission (2016), The Gambia will seek technical and financial support in the following areas:

- **Human capacity / Human capacity building:**

The Gambia will require veterinarians, animal husbandry personnel, a laboratory specialist, epidemiologist, nutritionist and socio-economist as Technical Assistance (TAs). The Government of the Gambia will provide accommodation and remunerate these professionals. In addition, the Gambia will need to train personnel in the same fields for a sustainable veterinary services.

- **Financial capacity:**

The Gambia will need financial assistance from the donor communities and development partners for the implementation of all the activities in all the stages of the national PPR control and eradication strategy. These specific organisations and agencies, FAO, EU, OIE and AU-IBAR are needed in the full implementation of the plan.

The Government will be required to allocate and progressively increase budget lines for PPR control and eradication as well as other disease control votes. On-going in-country projects such as FASDEP and NeMA will continue to provide funds for the control of PPR and other diseases in the veterinary field.

## ANNEXES

### ANNEXE I: LOGICAL FRAMEWORK

Results Chain	Objectively verifiable indicators	Baseline	Target	Source and means of verification	Assumptions
Goal: To contribute to food and nutrition security, poverty reduction and income generation of agricultural households.	Changes in poverty ratio of agricultural households	68.8%		Integrated Household Survey	
	Changes in contribution of livestock to agricultural GDP	40.11%	45%	GBoS (GDP Data)	
	Changes in proportion of food and nutrition insecure households	28.8%		WFP (CFSVA)	
Purpose: To improve health and production of small ruminants in The Gambia	Changes in the mortality rate of small ruminants	50%	10%	DLS Annual Reports /ARIS2	
	Change in the value of monetary loss associated to PPR	US\$10.45m	US\$0.00	DLS Annual Reports /ARIS2	
	Number of small ruminants	Goat - 328336 Sheep - 172662	591006 255539	Livestock Census Report NASS GANAD	
	Number of accredited veterinarians	15	22	DLS Annual Reports GVC	
<b>Activities</b>					
1. Establishment of National PPR committee	PPR committee established			Meeting reports	
2. Capacity in building different areas	Types and number of trainings conducted				
3. Studies on impact assessment of PPR	Studies conducted			Study reports	
4. Develop effective communication strategy for effective participation of all stakeholders	Communication strategies in place				

Results Chain	Objectively verifiable indicators	Baseline	Target	Source and means of verification	Assumptions
5. Preparation of a comprehensive risk based control strategy (vaccination)	Control strategy in place			Strategy report	
6. Equip the CVL and ITC labs to have molecular diagnostic capacity	Labs equipped and functional			Equipment, consumables	
7. Elaborate and update SOPs for PCR diagnostic techniques	SOPs elaborated and updated regularly			Lab reports	
8. Test all submitted samples meeting the eligible criteria for PCR diagnostic techniques	Samples tested			Lab reports	
9. Amendments to update the legal framework conducive to efficient PPR prevention and control.	Amendments proposed for the legal framework			VS reports, NPC reports	
10. Prepare and disseminate informative material to increase awareness among livestock farmers and thereby facilitate reports of suspected cases.					
11. Organize meetings with livestock farmers and their partners	Meetings held			VS MoMs reports	



Results Chain	Objectively verifiable indicators	Baseline	Target	Source and means of verification	Assumptions
12. Implement a quality control system in the central labs and branches (lab network) in the country, and develop all procedures related to the manipulation and testing of samples for PPR virus according to the standards of a quality assurance scheme	QA scheme implemented across the lab network			Reports	
13. Establish procedures to capture PPR health events in neighboring countries	Procedures elaborated			Reports	
14. Implement vaccination campaigns in areas where virus still circulates	Vaccinations carried out			Reports	
15. Develop and test contingency plans	Contingency plans developed and tested			Reports	
16. Conduct cross-border harmonization meetings with Senegalese counterparts.	No. of meetings held			Meeting reports	
17. Develop a procedure to compensate farmers	Procedures developed			Reports	
18. Distribute communication materials, Update all stakeholders	No. of Stakeholders that received communication materials			Communication materials distributed	
18. Train laboratory staff in differential diagnosis of PPR	No. of Lab staff trained			VS, lab reports	
19. Inventory PPRV containing material	No. of PPV containing material listed			Reports	

Results Chain	Objectively verifiable indicators	Baseline	Target	Source and means of verification	Assumptions
20. Organize training sessions to make field veterinarians fully aware of where the country is now in relation to the eradication process	Field veterinarians fully updated about progress			Meeting reports	
21. In the event of an outbreak, implement the provisions of the contingency plan.	No. of outbreaks and provisions of contingency plans implemented			Reports	
22. Increase collaboration with the Customs services at borders to optimize border control	Border control measures optimized			VS reports	
23. Conduct risk analysis on a regular basis	Risk assessments conducted			Reports	
24. Submit a dossier to the OIE requesting official recognition of PPR free status	Dossier submitted			Reports, OIE database	
25. Upgrade the legal framework to suit the activities foreseen in stage 4	Legal framework upgraded accordingly			Reports, Updated provisions	
26. Organize meetings with groups of stakeholders to acquaint them with the status of the country and ensure that they are aware that any suspicion of PPR is to be treated as an emergency	Meetings held			Meeting reports	
27. Prepare and disseminate informative material to stakeholder	Stakeholders informed of status of country			Materials, reports	

## **ANNEX 2: ACTION PLAN FOR FIRST FIVE YEARS**

### **1. INTRODUCTION**

In line with the Global strategy, the national strategy for the control and eradication of PPR in The Gambia will follow the step-wise approach that considers 4 stages: the assessment phase (Stage 1), the control phase (stage 2), eradication phase (stage 3) and post eradication phase (stage 4). In stage 1, the main activities will focus on trying to understand the epidemiological situation of the country. This will include conducting surveillance (especially active surveillance) and preparing the ground for prevention and control activities. Understanding the context of PPR in the Gambia will also include conducting a socio-economic assessment. A mass vaccination strategy will be pursued in the second stage and this will last for 3 years. Subsequently, the country will actively be involved in activities that will lead to the eradication of the disease from the national territory. At this stage strengthening the surveillance system will be intensified to detect any possible case(s)

The national strategy of the Gambia is based on the 5 technical elements as highlighted in the Global strategy: Diagnostics; Surveillance; Prevention and Control; Legal framework and Stakeholder participation. The focus will be to address issues related to these elements with the aim of reducing epidemiological risk and improving prevention and control capabilities along the assessment-eradication pathway.

The eradication of PPR in the Gambia is envisaged to be achieved within 10 years from 2018. The first five years will focus on implementing activities related to stages 1 and 2.

### **2. OBJECTIVES AND APPROACH:**

The overall goal is a vibrant small ruminant industry that contributes to food and nutritional security as well as improved human health and poverty reduction, through economic growth, notably among rural farmers.

The purpose of this control and eradication of PPR in The Gambia is to improve health and production of small ruminants. This programme would specifically strengthen

the veterinary services for the eradication and acquisition of OIE approved freedom from PPR disease by the year 2027

### **3. ACTION PLAN**

#### *3.1 Components and activities*

##### **Component 1: Enabling environment promotion**

This strategic plan would build on the experiences and capacities gained from on-going and past initiatives such as Rinderpest disease eradication through the PARC project (1991-1994), PACE project (2000-2004), VACNADA project for PPR control, Avian Influenza disease control project, Regional laboratory networks of ECOWAS, and VETGOV project of AU-IBAR. New projects like the AVCDP funded by the AfDB and the proposed Small Ruminant Project to be funded by IsDB would create opportunities

for the PPR eradication. There is a strong political will for the development and implementation of a strategy to control and eradicate PPR disease which is one of the most devastating diseases of small ruminants in The Gambia.

##### **Subcomponent 1.1: PPR strategy and technical plans**

- Setup a technical team to elaborate a National Strategy for the Control and Eradication of PPR
- Undertake expert consultative meeting for gathering inputs to the National Strategy
- Validate the National Strategy with stakeholders along the small ruminant value chain
- Develop a 5-year Action plan
- Setup a PPR National Control Committee
- Elaborate Emergency Preparedness Plan for PPR
- Prepare and harmonize SOPs for laboratory techniques and surveillance

A first 5-year Action plan (2017-2021) of the 10 year National Strategy (2017-2027) for PPR Control and Eradication would be implemented to set up the needed committees, laboratory diagnostics, surveillance, and mass vaccination campaigns targeting 80%

of the small ruminant populations.

### **Subcomponent 1.2: Stakeholder awareness and engagement**

All important and major stakeholders in the small ruminant value chain would be engaged during the preparation and implementation of this strategy plan through sensitisation meetings, radio and television broadcasts, distribution of communication materials, and press conferences. Producers' awareness on the control of PPR disease through regular and effective vaccination is on the increase as a result of several sensitisation meetings. They have been engaged and consulted along with technical partners (ITC, NARI), Associations (GVMA, NaLOA), small ruminant dealers, butchers, Veterinary Council, and Regional Directors of the Veterinary Services during the elaboration of this strategy. Public and private veterinarians and para-veterinarians as well as veterinary input suppliers have been consulted and would be involved throughout the process.

### **Subcomponent 1.3: Legal framework**

The Animal Disease Act 1944 with its amendments provides the basic legal framework for the control of animal diseases including PPR disease. Further amendments to this Act plus the new NRM policy and second generation NAIP would support the PPR control and eradication process. Existing disease control Acts, policies and regulations would be reviewed and amendments made to specifically address issues towards the control and eradication of PPR in The Gambia.

### **Subcomponent 1.4: Strengthening Veterinary Services**

The Department of Livestock Services (DLS) is under the Ministry of Agriculture and as such it's the Ministry's responsibility to promulgate policies towards disease control and prevention. Animal Disease Control Acts are on the other hand made into law by the National Assembly, which is the legislative arm of the government of The Gambia.

DLS has a directorate for veterinary services and a directorate of animal production. Administration at the headquarter level is led by a Director General who is supported by two Deputy Director Generals, Middle level officers and Support staff. Regional offices at the six regions of the country are headed by Regional Directors, Deputies

and Support staff. Livestock assistants are posted at District level. There is a Central Veterinary lab, Clinic, Epidemio-surveillance unit at headquarters level. There are also regional labs and clinics at the regional level.

The DLS is mandated to diagnose and control animal diseases, provide extension services to livestock producers, meat inspection and regulate quality of imported foods of animal origin. Private veterinary clinics and pharmacies, operated by veterinarians and para- veterinarians, are proliferating throughout the country. The Veterinary Services would be strengthened by enhancing capacities for PPR diagnosis, surveillance system, disease control, emergency response capability, mobility, communication and legislative framework.

## **Component 2- Support to the diagnostic and surveillance systems**

### ***Subcomponent 2.1: Epidemiological assessment***

Based on shortcomings highlighted in the strategy, activities will be conducted to have a better understanding of the epidemiological and context situation of PPR in the country. Both passive and active surveillance will be implemented in a sustainable way in the first phase of the strategy. The active surveillance component will be given extra focus as the passive surveillance may be too weak to be able to give a true picture of the situation. Efforts will be towards establishing the true prevalence of PPR in the country as well as its distribution. Studies will also be carried out to understand the impact of the disease on the economy and social setting. Assessment exercises will also be carried out to understand the cost effectiveness of the proposed control measures.

### ***Subcomponent 2.2: Strengthening of surveillance systems and laboratory capacities***

The veterinary laboratory diagnostic system in the country consists of the Central Veterinary lab, which is the national veterinary laboratory (CVL) of The Gambia, and peripheral labs located in each of the six regional veterinary directorates across the country. Another laboratory that is involved in the diagnosis of livestock diseases is the International Trypanotolerant Centre (ITC) central lab. This institution also

has peripheral labs in two of their field stations.

The CVL, which is located at the VS headquarters, has been involved in the processing and analysis of samples for the diagnosis of major livestock disease such as CBPP, RVF, HPAI, brucellosis and recently PPR. Some of the lab personnel have been trained on basic ELISA techniques. The regional labs are non-functional and without any trained lab technicians. The ITC labs are also limited in staff and material capacity. Activities will therefore be conducted to strengthen the capacities of the CVL and the ITC central lab. The following specific activities will be carried out:

- An assessment of the two central labs (CVL and ITC lab) and the regional labs
- Training of laboratory staff in ELISA techniques and other diagnostic procedures relevant to PPR and other priority SRDs.
- Provision of equipment and consumables.
- Formalize a national laboratory network for PPR diagnosis

The surveillance system of the VS of the Gambia relies on the surveillance network developed during the Pan African Control of Epizootics (PACE) program. The passive reporting system consists of a network of disease surveillance officers, surveillance agents and sanitary defence committees. The existing passive surveillance is however weak and cannot be relied on for a precise epidemiological situation of PPR in the country. Thus, activities will be carried out to strengthen the surveillance system. This will involve implementing an active surveillance component. The following activities will be carried out:

- Training of Livestock para-veterinarians and veterinarians on the recognition PPR
- Training of field agents and laboratory technicians on sample collection, processing and submission
- Train more progressively livestock producers to be part of the epidemiological surveillance network
- Provision of relevant equipment and consumables.

### **Subcomponent 2.3: Epidemiology and laboratory networks**

All the regional labs in the country are currently non-functional. After equipping and building the capacity of personnel, a network of the labs will be established such that

collection and processing of samples from the field level to the national labs are properly and efficiently done.

The epidemio-surveillance network activities will be linked to the laboratory network for effective disease investigation and diagnosis. Joint trainings will be conducted for both surveillance agents and laboratory personnel. Meetings involving both surveillance and lab personnel will also be held periodically for relevant information sharing. The national epidemio-surveillance and laboratory networks will continue to be part of the sub- regional networks. This will involve attending meetings and sharing relevant information.

### **Component 3- Measures toward PPR eradication**

PPR is a devastating disease causing up to 50% mortality of the sheep and goats population thus negatively impacting on their production and productivity. The main measure to be adopted for controlling PPR would be mass vaccination campaigns leading to progressive reduction of the incidence and eradication of the disease. The PPR control and eradication programme would be combined with reduction of Rift Valley fever, Pasteurellosis, ecto- and endoparasitism.

#### ***Subcomponent 3.1: PPR preventive and control measures***

In line with the global, continental and regional strategies, The Gambia would adopt the following measures to control and eradicate PPR throughout the country:

- Create awareness and communicate adopted control measures to stakeholders
- Conduct 3 years annual mass vaccination campaigns against PPR in sheep and goats
- Intensify active and passive surveillance for monitoring PPR prevalence and incidence
- Seromonitoring for determining animal response to vaccination
- Involve stakeholders in the implementation of biosecurity and movement controls

#### ***Subcomponent 3.2: Demonstration of PPR freedom***

Surveillance would be conducted to provide evidence that the Gambia is free from PPR disease and there is no circulating PPR virus over a 12-months period and at



least 24 months after the cessation of vaccination. In addition, early detection and reporting of any PPR outbreak with an Early and Emergency response mechanism would be put in place to cover the whole country. This would be instituted in the second 5-year action plan.

### ***Subcomponent 3.3: Control of other small ruminant diseases in support of PPR eradication***

The control of PPR along with Pasteurellosis, Rift valley fever and control of endo and ecto-parasites will be carried out simultaneously. Appropriate vaccines, drugs and supplies needed for the treatment and prevention of these diseases would be made available to the vaccinating teams. The desired outcome from this double-edged sword intervention would be to subsequently have a healthy national small ruminants flock, with high production and productivity rates. The control of other priority SRDs is also expected to boost the immune response to the PPR, in vaccinated sheep and goats.

## **Component 4- Coordination, Management and partnerships**

Successful implementation of the national PPR control and eradication strategy will have to rely on an effective and efficient management and coordination structure. There will also be a need to build partnerships with relevant stakeholders especially the private sector.

### ***Subcomponent 4.1: National level***

Implementation of the strategy will make use of the existing institutional structure at the ministry of Agriculture (MoA) with the Department of Livestock Services (the VS) taking the lead role; the Permanent Secretary of the MoA will chair a steering committee that is to be established. A national PPR committee will be set up to coordinate all activities related to PPR prevention and control and the modus operandi of the committee will be clearly spelt out. The Chief Veterinary Officer (CVO), being the head of the VS will coordinate the implementation of the identified activities. The two Deputy Director Generals (DDGs) of the DLS (VS) will closely work with the CVO and head specifically created technical subcommittees

(consisting of veterinarians, laboratory technicians, veterinary Public health officers, epidemiologists etc.) at central level. Focal points will also be identified to head different components at this level. The committees to be set up at Central level will include members from other line ministries and non-governmental stakeholder institutions thus:

- Ministry of the Interior,
- Ministry of Local Government, Lands and Regional Integration.
- Ministry of Finance and Economic Affairs
- Ministry of Environment,
- Members of the National Assembly
- The Gambia Veterinary Council
- The Gambia Veterinary Association
- The Gambia Horse and Donkey Trust
- The National Livestock Owners' Association

At regional level, a similar structure will be established. These will specifically include the following:

- Some members of the Technical Advisory Committees (TAC)
- Members of the Multi-disciplinary Facilitation Teams (MDFTs)
- District Authorities (Chiefs)
- Village authorities (Alkalolus)
- Action Aid The Gambia and other Non-Governmental Organizations
- Wulli and Sandu Development Agency
- The Regional Livestock Owners' Association

The above structures will ensure the full involvement of stakeholders. Also during the first phase of the strategy implementation, standard operating procedure will be formulated and implemented for a response mechanism in case of a suspected outbreak.

#### ***Subcomponent 4.2 With Regional partners and programmes***

The Gambia will collaborate closely and partner with the Republic of Senegal in the implementation of PPR prevention and control measures. The Gambia will endeavour to

harmonize its vaccination programs with those of Senegal. Cross border meetings will be held to discuss issues surrounding movement control of animals across the border. Sanitary information will be shared between the two countries. The epidemic - surveillance and laboratory networks will collaborate through networking meetings. The area of capacity building will also be exploited; Arrangements will be made to enable laboratory personnel of the CVL attend short term training courses at LNERV. Similar collaborative efforts will be extended to the other ECOWAS member states for an effective implementation of PPR control measures. As a member of the OMVG, the Gambia will participate in this body's meetings and will push for PPR control to be given top priority in its Agenda.

#### ***Subcomponent 4.3 With Pan-African and Global partners and programmes***

The Gambia will continue to seek for both technical and financial enhancement from both its traditional and non-traditional partners. Specifically, assistance will be sought for building the capacity of the laboratory and epidemic-surveillance staff. Technical assistance will also be sought for the strengthening of our laboratory facilities. For these, the following organizations will be engaged:

- Economic Community of West African States (ECOWAS)
- African Union Inter-African Bureau for Animal Resources (AU-IBAR)
- World Organization for Animal Health (OIE)
- Food and Agriculture Organization (FAO)
- World Bank (WB)
- European Union (EU)

The country will have to demonstrate its full commitment to the successful implementation of the strategy by creating the enabling environment for the above partners. This includes ensuring the existence of a strong political will.

### *3.2 Sustainability*

The Government will be encouraged to strongly consider PPR as a priority and to allocate a budget line for activities geared towards controlling and eradicating the diseases. In general, the government will be lobbied to increase in a consistent manner, the budgetary allocation for the public veterinary services. This will ensure

that the established control and prevention strategies are sustainable. The capacity of the VS will be sustainably strengthened by ensuring that elaborated contingency, emergency preparedness plans and SOPs are regularly updated. Continued Professional Development programs will be implemented for staff at all levels of the VS. Livestock keepers will be engaged from the beginning and together with other stakeholders, will be kept informed of all developments along the period of implementation and thereafter.

### 3.3 Risks and assumptions

Some of the risks foreseen include:

- Natural disasters
- Resistance from farmers (enforcement of regulations)
- Porous nature of the border with Senegal
- Livestock theft
- Possible political instability within the sub-region
- Lack of reliability of fund availability from government
- Policy inconsistency

However it is assumed that some of the above can be mitigated by the gradual adoption of the strategy by farmers, and government's political willingness to embrace the program. It is also assumed that the global commitment to eradicate PPR continues to gain momentum at all levels. FAO, OIE, AU-IBAR and ECOWAS will have to continue to lead the way in supporting the resource mobilization efforts of nations such as The Gambia.

## 4. FUNDING, MONITORING AND EVALUATION AND COMMUNICATION

### 4.1 Funding

Successful implementation of the strategy requires the availability of enough funds from different sources. Government allocation will be critical to set the stage for partners and stakeholders to come on board. Donor partners such as the WB, EU, AfDB and IFAD will be targeted for seeking funds. The support of the FAO and

OIE will also be sought to lobby regional blocs such as the ECOWAS. Public Private Partnerships will also be exploited, as well as on-going and upcoming government agricultural projects will be pursued to gain their support/contribution.

## 4.2 MONITORING AND EVALUATION

For effectiveness and to be able to adjust adequately along the implementation phase of the strategy, a monitoring and evaluation plan will be elaborated. This will establish a strong monitoring and evaluation team. In line with the GCES, the strategy will make use of such tools as the PMAT, PVE and other relevant tools to assess the effectiveness of some of the adopted strategies.

## 4.3 COMMUNICATIONS AND ADVOCACY

Farmers will be targeted through community radios and traditional communicators. Extension materials will be developed and disseminated. Village and district authorities will be used as entry points to get livestock owners. Lawmakers (National Assembly members) will also be targeted to lobby the government for the support of the program.

## ESTIMATED BUDGET FOR THE FIRST FIVE YEARS

Item	Description	Quantity	Unit Cost GMD	Amount GMD					5-year Total GMD	
				Y1	Y2	Y3	Y4	Y5		
Coordination	Development & Printing of National Strategy	1	675,000.00	675,000.00	-	-	-	-	-	675,000.00
	National PPR Committee Quarterly meetings	4	15,000.00	60,000.00	60,000.00	60,000.00	60,000.00	60,000.00	60,000.00	300,000.00
	Specific PPR Working Groups (Ad Hoc)	1	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	150,000.00
	Monitoring and Evaluation (field Visits) monthly	12	57,600.00	691,200.00	691,200.00	691,200.00	691,200.00	691,200.00	691,200.00	3,456,000.00
	PPR contingency plan dev & printing	1	225,000.00	-	-	-	-	-	-	225,000.00
	Gap Analysis - VS evaluation	1	500,000.00	-	-	500,000.00	-	-	-	500,000.00
	Cross border meetings with Senegal VS (yearly)	1	309,375.00	309,375.00	309,375.00	309,375.00	309,375.00	309,375.00	309,375.00	1,546,875.00
	Vaccines-PPR 900000 doses	1	6,075,000.00	-	-	-	6,075,000.00	6,075,000.00	6,075,000.00	12,150,000.00
	Vaccines- Pasteurellosis 900000 doses	1	6,075,000.00	-	-	-	6,075,000.00	6,075,000.00	6,075,000.00	12,150,000.00
	Drugs	1	4,288,500.00	-	-	-	4,288,500.00	4,288,500.00	4,288,500.00	8,577,000.00
	cold chain equipments & other materials	1	26,394,840.00	26,394,840.00	-	-	-	-	-	26,394,840.00
	Misc. tags, Notchers & Tag applicators	1	8,010,000.00	8,010,000.00	-	-	8,010,000.00	-	-	24,030,000.00
Laboratory & Diagnostics	ELISA reader & PC with Accessories (1)	1	67,500.00	67,500.00	-	-	-	-	-	67,500.00
	Lab consumables for diagnostic tests	1	135,000.00	135,000.00	135,000.00	135,000.00	135,000.00	135,000.00	135,000.00	675,000.00

Item	Description	Quantity	Unit Cost GMD	Amount GMD					5-year Total GMD
				Y1	Y2	Y3	Y4	Y5	
Epidemiology & surveillance	ELISA based techniques kits (30)	1	877,500.00	877,500.00	877,500.00	877,500.00	877,500.00	877,500.00	4,387,500.00
	Equipments (lumpsum)	1	3,186,000.00	3,186,000.00	3,186,000.00	3,186,000.00	3,186,000.00	3,186,000.00	15,930,000.00
	Logistics (Allowances & Fuel)	1	20,119,500.00	20,119,500.00	20,119,500.00	20,119,500.00	20,119,500.00	20,119,500.00	100,597,500.00
Communication & Education	Sensitization meetings	1	979,875.00	979,875.00	979,875.00	979,875.00	979,875.00	979,875.00	4,899,375.00
	TV programmes	1	50,040.00	50,040.00	50,040.00	50,040.00	50,040.00	50,040.00	250,200.00
	Radio programmes and jingles	1	75,600.00	75,600.00	75,600.00	75,600.00	75,600.00	75,600.00	378,000.00
	Billboards	1	120,600.00	-	-	-	-	-	120,600.00
	Posters	1	1,575,000.00	-	-	-	-	-	1,575,000.00
	T-shirts	1	135,000.00	135,000.00	135,000.00	135,000.00	135,000.00	135,000.00	675,000.00
Human Capacity Building	Training of professional (20)	1	22,950,000.00	22,950,000.00	22,950,000.00	22,950,000.00	22,950,000.00	22,950,000.00	114,750,000.00
	Training of technical staff (126)	1	2,070,000.00	2,070,000.00	2,070,000.00	2,070,000.00	2,070,000.00	2,070,000.00	10,350,000.00
	Other trainings (120)	1	1,800,000.00	-	1,800,000.00	-	-	1,800,000.00	5,400,000.00
Mobility	Training materials	1	63,000.00	-	63,000.00	-	-	63,000.00	189,000.00
	Motorbikes (50)	1	7,650,000.00	-	-	-	-	-	7,650,000.00
	Vehicles (7)	1	10,710,000.00	-	-	-	-	-	10,710,000.00
Miscellaneous	Misc. stationaries, cartridges, others	1	405,000.00	405,000.00	405,000.00	405,000.00	405,000.00	405,000.00	2,025,000.00

Item	Description	Quantity	Unit Cost GMD	Amount GMD					5-year Total GMD
				Y1	Y2	Y3	Y4	Y5	
SUBTOTAL				109,365,030.0 0	52,074,090.0 0	62,447,090.0 0	68,512,590.00	79,960,590.00	372,359,390.00
Contingency (10%)		1		10,936,503.00	5,207,409.00	6,244,709.00	6,851,259.00	7,996,059.00	37,235,939.00
GRAND TOTAL GMD				120,301,533.0 0	57,281,499.0 0	68,691,799.0 0	75,363,849.00	87,956,649.00	409,595,329.00
GRAND TOTAL USD				2,673,367.40	1,272,922.20	1,526,484.42	1,674,752.20	1,954,592.20	9,102,118.42





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