GARISSA COUNTY INTEGRATED PEST MANAGEMENT PLAN

FEBRUARY 2018

The vaccination campaign for management of Peste des Petits Ruminant (PPR), Sheep and Goat Pox, Contagious Caprine Pleuropneumonia (CCPP) and Lung, Skin Disease

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ACRONYMS

CCOs	County Chief Officers
CCPP	Contagious Caprine Pleuropneumonia
CDPH	county department of public health
CDR	Community Disease Reporters
CDVS	County Director of Veterinary Service
CECM	County Executive Committee Member
CESSCO	County Environmental and Social Safeguard Compliance Officer
COVID -19	Corona Virus Disease
CPC	County Project Coordinator
CPCU	County Project Coordination Unit
DALF	Department of Agriculture, Livestock and Fisheries
FCDC	Frontier Counties Development Council
GOK	Government of Kenya
KEVEVAPI	Kenya Veterinary Vaccine Production Institution
KCSAP	Kenya Climate Smart Agriculture Project
LHO	Livestock Health officer
LSD	Lung Skin Diseases
M&E	Monitoring and Evaluation
MPs	Members of Parliament
NEMA	National Environment Management Authority
OP	Operational policy
PMC	Project Management Committee
PMP	Pest Management Plan
PPE	Personal Protective Equipment
PPR	Peste Des Petit Ruminant
SAIC	Social Accountability and Integrity Committee
SCVO	Sub County Veterinary officer
SGP	Sheep and Goat Pox
VO	Veterinary Officer
WB	World Bank

EXECUTIVE SUMMARY

Garissa County is among the counties in northern Kenya with the high number of livestock populations. Livestock production under the extensive production system of nomadic pastoralism is the backbone of the County's economic activity. It accounts for 80% of the livelihoods and food security in a normal year. Livestock production also accounts for 75% of employment in the rural set up earning the County approximately Sh.8.5 Billion from Livestock and livestock products annually. However, the sector faces numerous challenges including emergence of frequent notifiable diseases such as PPR, CCPP, Sheep and Goat Pox among others.

The County government has developed County Integrated Development Plan 2018-2022 plans to respond to these diseases by way of vaccination so as to reduce losses. Vaccination against these diseases is also in the annual work plan of the Garissa county department of veterinary service. Furthermore, the sub sector has developed livestock disease control framework for Garissa County that prioritized livestock diseases through mapping and identification of hotspots. The development of the framework culminated in the development of Common Strategies for Livestock Disease Control in Frontier Counties Development Council (FCDC) region, which recognized the importance of common approaches to livestock disease control. In a bid to achieve these goals, the Department of Agriculture, Livestock and Fisheries has requested the Kenya Climate Smart Agriculture (KCSAP) to support this vaccination exercise as one of its sub projects.

Environmental and Social Safeguard screening has been done on the proposed project which indicated the need to develop a Pest Management Plan (PMP), which is the subject of this report. The PMP has identified several positive impacts and negative impacts whose mitigation measures have are outlined herein. The positive impacts are improving animals' productivity and resilience to diseases, improved trade and marketing of animals, awareness creation and increased community knowledge on animal health through sensitization on public health threats and risks.

Negative impacts are wastes from empty vaccine containers and damaged needles, accidents and injuries, exposure to Covid-19, conflicts as well as exclusion of some beneficiaries due to some beliefs. These wastes will be managed by ensuring that they are all collected using a well labelled containers, segregated into different categories (hazardous and non-hazardous) and disposed of safely using the NEMA protocol of disposing off such wastes. Accidents and incidents will be mitigated by provision of PPEs. Ministry of Health protocol in containment of Covid-19 will strictly be adhered to minimize risk of exposure. Proper sensitization and mobilization will also be

done to mitigate the risk of exclusion of beneficiaries. The exercise can bring conflict among the beneficiaries. These clashes can happen when different beneficiaries meet with their livestock at the vaccination point at the same time. There will be competition of who is to be served first. Members of some marginalized communities may fail to avail their animals for the vaccination. This will be mitigated by undertaking the vaccination exercise in the respective Manyatta at a stipulated time. This will be achieved by first mapping the areas where the exercise will take place. Use of GRM team to deal with grievance before they scale upwards

The preparation of the PMP involved several actors selected from both the county staff and national government staffs. The county government were represented by staff from the department of veterinary, department of environment and natural resources, KCSAP team and the department of health. The national government was represented by NEMA.

The project is estimated to cost KSH 12,000,000 out of which KSH 8,000,000 will be paid by KCSAP, and KSH 4,000,000 will be contributed by the County Government and the community. The sub project funds will be managed under CPCU project account including PMP activities. The vaccination campaign for management of Peste des Petits Ruminant (PPR), Sheep and Goat Pox, Contagious Caprine Pleuropneumonia (CCPP) and Lung, Skin Disease exercise targets 40,000 camels, 60,000 cattle, 250,000 small stock (sheep and Goats) spread across 6,000 households in Garissa County

CHAPTER ONE: INTRODUCTION

1.0 Background Information

Garissa County is one of the three counties in the North Eastern region of Kenya. It covers an area of 44,174.1 Km2 and lies between latitude 10 58'N and 20 1' S and longitude 380 34'E and 410 32'E. The county borders the Republic of Somalia to the East, Lamu County to the South, Tana River County to the West, Isiolo County to the North West and Wajir County to the North.

Garissa County is basically flat and low lying without hills, valleys and mountains. It rises from a low altitude of 20m to 400m above sea level. The major physical features are seasonal Laghas and the Tana River Basin on the western side. The River Tana has tremendous effect on the climate, settlement patterns and economic activities within the county. Given the arid nature of the county, there is great potential for expansion of agriculture through harnessing of River Tana and Laghas.

Garissa County is principally a semi-arid area falling within ecological zone V-VI and receives an average rainfall of 275 mm per year. There are two rain seasons, the short rains from October to December and the long rains from March to May. Rainfall is normally in short torrential downpour making it unreliable for vegetation growth. The southern parts of the County such as Hulugho, Masalani and Bura receive more rainfall than the northern parts. Balambala and Fafi Constituencies practice rain-fed agriculture on small scale. During the dry season, there is a general migration of livestock from the hinterland to areas near River Tana where water is readily available. However, some pastoralists move with their livestock to adjacent counties of Tana River and Lamu in search of pasture. Much of the County's livestock population are indigenous sheep, goats and cattle, found in the southern parts which receive more rain while camels occupy the drier north.

Given the arid nature of the county, temperatures are generally high throughout the year and range from 20°**C** to 39°**C**. The average temperature is however 26°**C.** The hottest months are September and January to March, while the months of April to August are relatively cooler. The humidity averages 60g/m3 in the morning and 55 g/m3 in the afternoon. An average of 9.5 hours of sunshine is received per day. Strong winds are also experienced between April and August with the rest of the months getting calm winds. Because of climate change the rainfall patterns and temperature

has been changing due to climatic conditions. Thus, the county is prone to drought and flood emergencies.

Garissa County has six sub-counties which include: Fafi, Garissa, Ijara, Lagdera, Balambala and Dadaab. These correspond to constituencies in the County. There are 7 administrative units as shown in Table 1 and figure 1.

Table 1: Garissa county administrative units

S/NO	ADMINSTRATIVE UNITS	AREA KM	DIVISION	LOCATION
1	Garissa	2,538.5	3	10
2	Lagdera	6,519	3	10
3	Fafi	15,469	3	12
4	Balambala	3,049.2	4	12
5	Hulugho	3107.8	3	16
6	Dadaab	6,781	3	12
7	Ijara	6,709.6	4	11

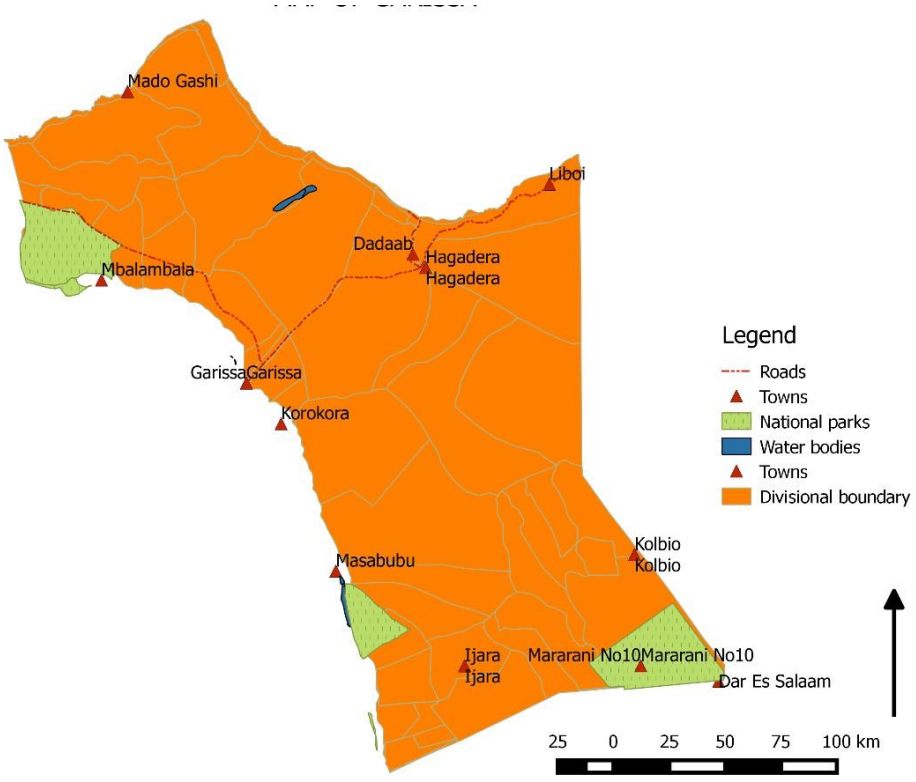

Figure 1: Map of Garissa county administrative units

Livestock rearing is the backbone of the county's economy. The main livestock bred are cattle (Boran), goats (Galla), sheep (black headed Persian) and camel (dromedary one humped). The main livestock products are meat, milk, hides and skins. The estimated numbers of livestock by type are 1,324,184 cattle, 1,689,870 sheep, 2, 347,163 goats, 450,000 camel, 160,000 donkeys and 215,000 poultry. During the dry season, there is a general migration of livestock from the hinterland to areas near River Tana where water is readily available. However, some pastoralists move with their livestock to adjacent counties of Tana River and Lamu in search of pasture. Much of the County's livestock population are indigenous sheep, goats and cattle, found in the southern parts which receive more rain while camels occupy the drier north.

The County is inhabited by the Somalis who are among the marginalized communities in the country as well as indigenous people. The whole of the county is classified as Arid. Communities in Garissa face frequent droughts – occurring every two years – thereby increasing the vulnerability of the inhabitants. The County has strategic markets with the major one being the Garissa market. Other minor ones include, Ijara and Modogashe. Livestock traders travel from as far as Nairobi and Mombasa to buy livestock from Garissa market. Garissa County is regarded as a haven of livestock diseases. This is because of its strategic location linking the Northern Kenya to the markets in Thika, Nairobi, Mombasa and other areas. Free movement of animals in the area predisposes livestock to diseases with important ones being *Contagious Bovine Pleuropneumonia* (CBPP), Lumpy skin disease (LSD) for cattle and *contagious caprine pleuropneumonia* (CCPP), Peste des petits ruminants (PPR), sheep and goat pox and blue tongue diseases in sheep and goats. Other very important cyclical zoonotic disease is the Rift Valley fever.

The preparation of the PMP involved several actors selected from both the county staff and national government staffs and the targeted communities. The county government were represented by staff from the department of veterinary, department of environment and natural resources, KCSAP team and the department of health. The national government was represented by NEMA.

1.1 Vaccination justification

KCSAP Development Objective is to increase agricultural productivity and enhance resilience /coping mechanisms to climate change risks in the targeted smallholder farming and pastoral communities in Kenya, and in the event of an Eligible Crisis or Emergency, to provide immediate and effective response. The project is to be implemented through the following components: up-scaling Climate Smart Agricultural Practices, Strengthening Climate-Smart Agricultural Research and Seed Systems, Supporting Agro-weather, Market, and Advisory services, Project Coordination and Management and Contingency Emergency Response

Under the component of up-scaling Climate Smart Agricultural Practices one of the major activities being supported is Animal health (vaccination against FMD, PPR, RVF and CBPP). KCSAP has supported vaccinations against these diseases in the past in the county, an intervention that has positively impacted on the health of livestock by reducing disease incidences and associated livestock mortalities, consequently improving the pastoral community livelihood. Productivity of livestock is affected by several factors including feeding (nutrition), diseases and routine management practices.

Towards the end of last year, the Garissa County veterinary department conducted active surveillance following increased reports of disease outbreaks in small stock, cattle and Camels. The findings from the laboratory analysis of samples indicated increased prevalence of CCPP and PPR from the basal levels of 30% and 27% to a higher level of 39% and 44% respectively. Additionally, clinically confirmed cases of Lumpy skin disease in Cattle have been reported in some of the wards visited. In camels, high tick burden and acute respiratory syndromes have been reported. Further, random samples screened also revealed presence of actively circulating RVF virus in small stock in localized areas. It is on this basis that a request was submitted to seek Kenya Climate Smart Project (KCSAP) to facilitate the County Veterinary department to undertake targeted vaccinations and treatments in and around the affected regions within the County

Vaccination campaigns against PPR and CCPP has been planned and conforms to the CIDP and the annual work plan of the technical department of veterinary services. Vaccination process requires safeguard mitigation measures to be put in place to address any potential adverse effects resulting from handling/ use of the vaccines, thus the need to develop a Pest Management Plan (PMP) to guide for implementation of this vaccination exercise. Proposed vaccination will be carried out on livestock within the county with priority given to the areas of high prevalence the target number of beneficiaries is approximately 6000 households, with an aim of vaccinating approximately 40,000 camels, 60,000 cattle, 250,000 small stock (sheep and Goats) from Peste des Petits Ruminant (PPR), Sheep and Goat Pox, Contagious Caprine Pleuropneumonia (CCPP) and Lung, Skin Disease

Table 2 Source Garissa county livestock population

Species	**Estimated population.**
Cattle	1.32 million
Goats	2.3 million
Sheep	1.68 million
Camels	450,000
Donkeys	160,000

CHAPTER **TWO:**RELEVANT REGULATIONS AND POLICIES

2.1 Occupational Health and Safety Act 2007

The Occupational Health and Safety Act (OSHA) provide for the health, safety and welfare of persons employed, and all persons lawfully present at workplaces and related matters. Part II of the Act clearly stipulates the duties of occupiers. Part IX particularly deals with chemical safety. In particular, section 83 Section 83 gives provisions for handling, transportation and disposal of chemicals and other substances; Section 84 gives provisions for material safety data sheet; Section 85 provides for proper labeling and marking of all chemical packaging; Section 86 advocates for classification of hazardous chemicals and substances. In addition, Section 89 provides for control of air pollution, noise and vibration. The provision of this Act and in particular the above quoted sections will be complied with during the vaccination exercise. All employee engaged in this exercise will be provided with PPEs so as to ensure their safety and health. Furthermore, the animals will be vaccinated in designated crushes so that they do not cause injuries or harm to the employees. All waste will be collected using appropriate waste receptacles, segregated according to their characteristics and property, clearly labeled, transported by a licensed transporter and disposed off in a designated disposal site such as nearby dumpsites and/or Garissa County Referral Hospital incinerator or any other nearby incinerator of health facilities. There will be a monitoring team that will closely supervise compliance with these regulations.

2.2 Waste Management (EMCA) Regulations 2006

These Regulations define rules for the management of waste in general and for the management of solid waste, industrial waste, hazardous waste, pesticides and toxic substances, biomedical waste and radioactive substances in particular. Section II of the act clearly stipulates that no person shall dispose of any waste on a public highway, street, road, recreational area or in any public place except in a designated waste receptacle. Section 2 further states that any person whose activities generate waste shall collect, segregate and dispose or cause to be disposed off such waste in the manner provided for under these Regulations. Section 33, 34 and 35 (part IV) further give provisions for classification, registration, labeling, packaging, advertising, distribution, storage, transportation, handling and disposal of pesticides.

The project will indeed generate waste in different forms (hazardous and non-hazardous). These include used needles, empty vaccine bottles, bent needles, empty plastic containers and other waste from the vaccination team. In compliance with this regulation, the proponent (CPCU) will ensure that this waste is collected, segregated into hazardous and non-hazardous waste and

disposed off in a manner provided for in this regulation. Furthermore, all waste will be categorized and properly labelled. All non -hazardous waste will be disposed off in the nearest dumpsites while hazardous wastes that have been segregated will be incinerated in the nearest health facility. Where there are no nearby health facilities, the waste will be transported by a licensed transporter and incinerated in the incinerator of Garissa County Referral Hospital.

2.3 World Bank Operational Policies

The project uses pesticide in a wide scale and this triggers World Bank's Operational Policy OP4.09 (Pest Management) which requires preparation of pest management plan. The policy supports safe, effective, and environmentally sound pest management which promotes use of biological and environmental control methods and reduces reliance on synthetic chemical pesticides. The policy aims at assisting proponents to manage pests that affect either agriculture or public health. Development of this PMP hence complies with the provision of this policy.

The Vaccination Project also triggers operational policy OP 4.01 Environmental assessment which dictates that all WB funded projects should be environmentally and socially sound. In this exercise solid waste in form of empty vaccine bottle, used injection needles that can contaminate the environment will be generated. The specific impacts mentioned have mitigation measures that are captured in the PMP. Major players of the vaccination exercise including the county veterinary staff, NEMA representative, cold chain team, public health staff, county interior and waste disposal team will be sensitized on the PMP. As required by this Policy, the project was screened for potential environmental and social risk which identified the need for this ESIA.

The vaccination exercise will also trigger OP/BP 4.12 (indigenous people). For all projects that are proposed for Bank financing and affect indigenous peoples, the Bank requires the borrower to engage in a process of free, prior, and informed consultation.

The objective of this policy is to design and implement projects in a way that fosters full respect for Indigenous Peoples' dignity human rights and cultural uniqueness and so that they receive culturally compatible social and economic benefits and do not suffer adverse effects during the development process.

The dominant ethnic group in the area are IPs. Bank-financed projects are designed to ensure that the indigenous peoples receive social and economic benefits that are culturally appropriate and gender and inter-generationally inclusive.

The OP is triggered, and a Project Social Assessment has been undertaken to guide the implementation of the sub- project.

- ✓ *All project beneficiaries (Somali) are categorized as IPs/VMGs that is indigenous nomadic and semi nomadic pastoralists and have been engaged in the proposed project from the pre-planning phase in adherence to FPIC to enhance inclusivity and cultural appropriateness. The project will benefit them very much as it aims at improving the health of livestock by reducing disease incidences and associated livestock mortalities, consequently improving the pastoral community livelihood and increasing their resilience to climate change*
- ✓ *Other VMGs including the elderly women and men and the unemployed youths have also been included in this project and they will also benefit from it.*
- ✓ *The project is also anticipated to benefit widows and orphans in the project area*.

CHAPTER THREE:VACCINATION PROCESS

3.1 Surveillance, Mobilization and Publicity for Vaccination Exercise

The vaccination exercise will take place in the following five sub counties of Garissa as shown below.

Table 3: Targeted Ward

S/NO	SUB COUNTY NAME	TARGATED WARDS
1	Balambala	Saka, Balambala, Danyere, Jarajara And Sankuri Ward.
2	Lagdera	Baraki, Maalimin, Shantabak, Sabena, Modogashe And Banane
3	Fafi	Fafi Bura,Jarajila, Masabubu,Nanighi And Welamarer
4	Dadaab	Abak Aile, Daadab, Liboi, Labisigale, Damajale And Dertu
5	Ijara	Halughho, Sangailu, Ijara and Masalani.

To ensure wider coverage of livestock during vaccination campaigns, adequate prior mobilization and sensitization is paramount. These will be done by technical staff from the department of veterinary and CPCU Garissa in collaboration with the local community leaders. The community will be mobilized using radio announcements, text messages, posters and telephone calls. Mobilization and sensitization will also be done through radio messages in local languages. The team will visit each and every sub county and meet with the Sub county Administrators, Ward Administrators, chiefs and assistant chiefs, religious leaders, respected elders, women and youth leaders, and targeted beneficiary members so as to create awareness. During this meeting, strict adherence to ministry of health guideline on containment of covid-19 will be followed. This includes; wearing of face mask, keeping of 2-meter social distance and regular hand sanitization. The attendees will not be more than ten persons. The county public health officer will also accompany the team so as to check temperatures of attendee as well as sensitizing the participants on the dangers of covid-19. During this meeting, the most vulnerable and marginalized members of the community will be identified and registered so that they can be given priority during the vaccination exercise. Furthermore, Community members will appoint a team consisting of both genders and including VMGs that will work with social accountability and integrity committee (SAIC) who are part of the PMCs of the sub project together with the team leaders and the area chiefs to deal with complains/grievances.

All complains will be logged in the grievance log registers for purposes of documentation and learning. Any grievance that cannot be resolved will be escalated to the county grievance committee. The county leadership headed by the Governor, county secretary, County Executive Committee Member (CECM) for Department of Agriculture, Livestock And Fisheries (DALF), County Chief Officer (CCOs) Department of Agriculture, Livestock And Fisheries (DALF), Chair Departmental Committee of the department of Agriculture livestock and Fisheries in County assembly, Area Member of Parliament (MP)s, Sub county and Ward administrators will all be mobilized so that they can be present during the flagging off of the sub project. Communities will also be sensitized of the risks associated with the project such as injuries, accidents, pollution as well as vaccine reaction during the mobilization. Mobilization will be followed by a pre surveillance exercise so as to obtain accurate data of the hotspots of these diseases. All project beneficiaries will be engaged in the vaccination exercise from the pre-planning phase in adherence to FPIC to enhance inclusivity and cultural appropriateness.

Table 4: Communication Channels for Mobilization,

Channel	Plan of action	Responsibility
Print media	Banners; Posters; Fliers Local administrators	CDVS office, KCSAP
Watering points	Word of mouth	Local administrators, CDVS office, KCSAP
Telephone	Airtime	Local administrators, CDVS office, KCSAP
Local FM stations	Paid adverts	CDVS, KCSAP

3.2 Vaccination Stakeholder Mapping

Mobilization meeting targeting stakeholder's participation in the vaccination exercise will be done. Meetings will be conducted under the strict guidelines of MOH to minimize the spread of COVID-19 as provided by the Public Health Act. This includes maintaining social distancing and use of face masks and observation of personal hygiene (hand washing and sanitizing) during the meetings. Representatives of the following sectors/ departments will be engagedTable 5 below lists the various stakeholders to be involved in the vaccination process and their roles.

Table 5 Stakeholder and their roles

STAKEHOLDER	ROLES
Beneficiary community	• Participate in the vaccination exercise by bringing their animals to the vaccination area • Construct and repair crushes • Comply with the ministry of health guidelines in containing the spread of COVID-19 disease
Area chiefs	• Participate in publicity and mobilization exercise • Participate in the monitoring of the vaccination exercise
Security personnel	• Ensure security of the vaccination team • Assist in relaying information regarding the status of security when called upon • Ensure law and order is maintained during conflicts • Assist in the implementation of COVID-19 containment measure
KCSAP/CPCU	• Coordination of the sub project activities • Participate in the procurement and collection of vaccines Ensure safeguard issues are taken care of in the implementation process • Monitoring the implementation process • -Reporting • Prepare the PMP for the sub project and ensure its implementation
NEMA	• Ensure Environmental and Social safety during implementation process of the sub project • Supervise collection and safe disposal of waste • Reporting
Media	• Passing information on the vaccination through talk shows and prime time ads
Public Health Dept	• COVID-19 sensitization and preparedness • Support disposal of hazardous wastes

PMC	• Participate during mobilization and flagging off the project • Receive and handle all complains during the implementation of the project • Participate in the monitoring of the progress of the project

3.3 Procurement of Vaccines

This will be the responsibility of the veterinary directorate. The CDVS will initiate the procurement process with guidance from the County Project Coordination Unit. 100,000 doses of PPR, 97,700 doses of SGP. **53,000** doses of LSP Lumpy skin disease vaccine 100 dose veil Contagious caprine pleuropneumonia Vaccine100 dose veil. Table 6 contains the list of vaccines and equipment to be used for the vaccination exercise.

Table 6: Drugs and Chemicals

Item description	**Unit of measure**
Anthelmintics (Albendazole 10%)	Liters
Ectopor - Cypermethrine 2%	500 ml bottles
Oxytetracycline 20%	50 ml Vials
Veridium	125 gm
Diceptoprim boluses	200 mg boluses
Ivermectin 1%	50 ml bottles
Multiject	5gm bottle
Dexamethasone	50 ml bottles
Coccid - Amprolium hydrochloride	50 gm sachet
Debush 5% EC	250 ml
Lumpy skin disease Vaccine	100 dose Vials
PPR Vaccines – doses	100,000
SGP Vaccines	97700
Contagious caprine pleuropneumonia Vaccine	100 dose Vials
Equipment	
Chest freezer- capacity 446L	1pc
Refrigerator –total volume 263	3pcs

Disposable Syringes 20ml	1500 pcs
Disposable Needles G18	1500 pcs
PROTECTIVE GEAR(OVERALL)	40 pcs
DUST COAT WITH CAP	40 pcs
Automatic syringes- 50 ml german	30 pcs
Barrels 50ml	30 pcs
Hypodermic needles 14 ½ doz	2160 pcs
Hypodermic needles 16 ½ doz	2160 pcs
Spare repair kits	15 pcs
cool box medium	18 pcs
Cold-storage of Vaccines and Ice supply	256
Large cool boxes	8
Livestock markers	324 pcs
Dust mask	6 pcs
Gumboots	40 pcs
Alcohol based hand sanitizers	21 bottles
Bar soaps – 1 kg	20 pcs
Waste receptacles (clearly labelled polythene paper)	10 bundles
Face mask	50 boxes
Surgical gloves	3000 no
Temperature monitors	8 no
Improvised water dispensers	6 (for the 6 teams)
First aid kit	12 (2 for @team)

3.4 Collection of Vaccines

The CDVS will be responsible for the collection of the vaccines. During collection the officer will verify the status of vaccine as follows: Packaging, labeling, expiry dates among other vaccine attributes. Vaccine collection sheet (Annexes 1) will be filled and photographs taken for documentation of the process. Temperature monitor will be activated on collection and once inside the cool box.

3.5 Vaccine Transportation

The County Veterinary officer and KCSAP Procurement Officer will collect the vaccines from KEVEVAPI cold stores. Relevant authorization to travel will be acquired for the officers travelling from relevant authorities (County Commissioner/ County Public Health Department). At the stores, COVID-19 containment measures (according to the Public Health Act) will be followed to minimize exposure and possible spread. During the exercise, all persons involved will wear face masks and gloves, and keep socially acceptable distances. Each vehicle will be having sanitizers for use during transportation.

3.6 Cold Storage Space

The vaccines will be received upon safe delivery by the store manager who will check, verify and store the vaccines accordingly. The delivery documents will be signed and entered into the store's ledger book. The best cold chain management Practices will be adhered to. Temperature monitors will be used on cooler boxes and freezers to ensure that recommended temperatures are maintained during transportation and storage of the vaccines.

3.7 Briefing for Vaccination Campaigns

Before rolling out the vaccination exercise, the County will hold a one (1) day intensive activity to brief the teams participating on environmental and social safeguards issues to adhere to during the vaccination exercise. The briefing entails the discussion on documentation, vaccination targets, and daily records among others.

3.8 Vaccination Exercise

The vaccination team composition will comprise of a team leader (VO), livestock health officer (LHO) and Animal health technician and a driver. Depending on the funds available and the number of vaccines and treatments to be delivered, they can be assisted by the community disease reporters (CDR)

3.9 Vaccination Sites

The following criteria will be used to select the site:

- Population of animals
- Gather intelligence on outbreaks on the site
- Safety on the team and the animals
- In high security areas the teams should brief the respective security personnel in the area.

In the vaccination sites the community committee will take charge in ensuring that herds are led are into crush pens in a systematic manner (based on households or areas of origin) to minimize crowding, ensure social distancing and also adherence to laid down COVID-19 control measures by the government. There will also be provision of hand washing containers and water by the community members.

3.10 Vaccinators

The project will ensure that the vaccinators are registered with the Kenya Veterinary Board and other relevant professional bodies, and have undergone IPM safeguards training. They will wear protective gear during the period of vaccination. The vaccinators should be medically and physically fit. Shall be not be using any substance during the exercise and morally upright to stay with the community they work for.

All officers will be required to declare their health status and those found ill or with fever will be required to seek medical attention and certification of COVID-19 free before joining the teams. Any officer with history of travel especially in COVID-19 reported hotspots will also be required to undertake mandatory testing and subsequent certification before joining the teams.

They will wear protective gear (overalls, gumboots, face shield, mask and gloves) during the vaccination activities. All vaccination equipment will be provided by the project and County Director of Veterinary Services. Face shields, masks and gloves will be provided including sanitizers to each team for use by the vaccinators, community animal handlers and recorders. Officers will be required to observe necessary measures that will minimize infection and spread of COVID-19.

3.11 Cold Chain and Disposal Management

A team comprising of veterinary, public health officers, NEMA and CPCU will be in-charge of cold chain maintenance and disposal of bio hazards. While the team is moving around, distributing additional ice blocks, they will at the same time collect used vaccine vials and other wastes which will be segregated into toxic/ hazardous wastes for incineration by public health officer and non-toxic which may be burned or disposed as will be advised by NEMA. Wastes from vaccination sites will be collected in dustbins to be provided during the exercise.

The Cold chain team as they will be doing the supervision and replenishing group's vaccines and ice blocks, they will also be collecting used vaccine material and other wastes which will then be deposited at the County headquarters. Later, the waste will be disposed in accordance with waste management best practices. It will be the responsibility of the Chief Officer livestock to purchase the waste receptors and any additional personal protective clothing (PPE).

Table 7: Waste Management and Disposal team

RESPONSIBLE OFFICER	**DEPARTMENT**
CDS/CO (County disease Surveillance/ Control Officer)	Veterinary
Veterinary County Director	Veterinary
Vets store manager	Veterinary
Officer in charge of Incinerator(technician)	Garissa county referral hospital
NEMA	National Environment management authority
CESSCO	KCSAP
Driver.	

3.12 Reporting

During the preparation and actual vaccination exercise, the following reports will be generated.:

Table 8 Reports that will be generated during and after the exercise are:

Report	Frequency	Responsible
1. Vaccine collection report	Once	CDVS
2. Vaccination Publicity report	Once	M&E
3. Cold chain Management	Once	Cold chain manager
4. Vaccination Monitoring report	Once	CDVS
5. Safeguards report	Once	CESSCO
6. Daily vaccination reporting	Daily	Team leaders
7. Vaccination waste Disposal report	Once	Disposal team
8. Overall vaccination report	Once	CDVS
9. Knowledge management	Once	M & E

During reporting, the following information will be included in the reports:

I. List of participants during the consultative meeting (Annex 2)
II. Copy of livestock vaccination manifest detailing the Ward, Sub location, Crush site, Names of farmer, Number of cattle vaccinated. (Annex 3)
III. Photographs during the exercise
IV. COVID 19 compliance levels

3.13 Grievance and Redress Committee

A GRM committee will be at the County level, and smaller committees at the location level (frontline) to handle emerging issues before, during and after vaccinations. At the vaccination site/frontline committee will comprise of the Community representatives (7), Areas Chief and his assistant, Ward administrator, VMG team consisting of both genders, and Vaccination supervisor. The committee will ensure that complaints are promptly reviewed and addressed and all other

Issue likely to arise during the vaccination exercise. The committee will ensure that the aggrieved parties are brought to knowledge of the project, vaccination planning, coverage and why some areas will not be covered.

3.14 Supervision Teams

The vaccination activity will be supervised by a team composed of the CEC, Chief officers, CDVS, M&E & other relevant individuals. The team will oversee implementation at community level by visiting teams and meeting community committees formed to oversee the exercise. The team will address technical, Environmental, social and welfare issues during the exercise.

In this section, present missing information on:

- Mobilization and targeting – separately for Community and stakeholders.
- Which minority and vulnerable Groups will participate and how will inclusivity be ensured?
- Present details on communication channels for mobilization.
- Present info on vaccination equipment and consumables probably in form of a table with the items and quantities specified.

3.15 ACTUAL VACCINATION PLAN

The county intends to carry out vaccination campaign for management of Peste des Petits Ruminant (PPR), Sheep and Goat Pox, Contagious Caprine Pleuropneumonia (CCPP) and Lung, Skin Disease the vaccination exercise targets 40,000 camels, 60,000 cattle, 250,000 small stock (sheep and Goats) spread across 6,000 households in Garissa County in the following wards as shown below in Table 9

:Table 9 Vaccination site and type of vaccine

S/NO	SUB COUNTY	WARDS	Site	Vaccine
1	Balambala	Saka, Balambala, Danyere, Jarajara And Sankuri Ward.	Crush	PPR,SGP,CCPP,LSD
2	Lagdera	Baraki, Maalimin, Shantabak, Sabena, Modogashe And Banane	Crush	PPR,SGP,CCPP,LSD
3	Fafi	Fafi Bura,Jarajila, Masabubu,Nanighi And Welamarer	Crush	PPR,SGP,CCPP,LSD
4	Dadaab	Abak Aile, Daadab, Liboi, Labisigale, Damajale And Dertu	Crush	PPR,SGP,CCPP,LSD
5	Ijara	Halughho, Sangailu, Ijara and Masalani.	Crush	PPR,SGP,CCPP,LSD

The vaccination exercise will be done by staff from the department of veterinary, the staff will undergo IPM Safeguard sensitization before commencement of the exercise, and will wear protective gear during the period of vaccination. Vaccination equipment will be provided by the project and County Director of Veterinary Services, Garissa County. Community members will be engaged in identifying crushes during publicity and community mobilization.

CHAPTER FOUR: POTENTIAL ADVERSE ENVIRONMENTAL AND HEALTH AND SOCIAL RISKS OF VACCINE APPLICATION

4.1 Positive Impacts of Vaccination

Improving animals' productivity and resilience to diseases- Vaccination improves animal health hence improved livestock productivity. This will lead to increased availability and accessibility of livestock products; namely milk and meat, which will enhance household nutrition and income.

Facilitates trade and marketing of animals - Vaccination will ensure stability of markets. Since notifiable disease occurrence calls for imposing of quarantine as a measure to contain the disease and avoid its spread to other regions, thereby disrupting animal movement and trade. This disruption, leads to reduced income as farmers cannot access market for their livestock. In addition, women will be deprived of income due to closure of animal markets during quarantine as they normally supply to these markets' other products like vegetables, clothes and eateries.

Awareness creation- vaccinators will sensitize farmers on disease control and management and also helps farmers to be aware of the time to vaccinate the animals. This will improve community awareness and understanding of livestock diseases and their management.

Sensitization on Public health threats e.g., Covid-19 disease helps the community in understanding their impact and control measures.

4.2 Anticipated Negative Impacts

4.1.1 Unsightly filthy veterinary waste around vaccination sites

Vaccination team sometimes throw or leave some waste in the field creating unsightly scenes and livestock owners pick the containers and reuse them oblivious of the danger. The disposal team will ensure that waste collected at the crush sites is sorted out, grouped and effectively disposed according to set waste disposal regulations.

4.1.2 Soil contamination

Pesticides, which are still used in agricultural land in and around the proposed project area, could enter soil during spraying causing wash-off or run-off into soil. Some pesticides such as soil fumigants and nematicides, which are applied directly into soil to control pests and plant diseases, are often introduced into soil. Long-term excessive use of pesticides will cause higher pesticide residues in the soil, which will further cause soil contamination within the area. Proper care will

be taken by qualified personnel in delivering the vaccines to the animals, therefore effectively preventing spillage on the ground.

4.1.3 Air Pollution

Though most of the Pesticides the project is procuring are not to be sprayed accompanying supportive pesticides procured by counties or other stakeholders may be released into the air, and if the chemical compound is very stable, vapour may travel beyond the vaccination points. Whether pesticides are applied by spraying or by surface application, air is the usual medium through which the chemicals move to their intended and unintended targets. Reliable data on how pesticides behave in air, such as distance travelled, are lacking, because adequate monitoring is unavailable. Vaccines to be used will not lead to contamination of air since they will be delivered by way of sub-cutaneous injection.

4.1.4 Harm to Non-target Species

The environmental impact of pesticides consists of the effects of pesticides on non- target species. Over 98% of sprayed insecticides and 94% of herbicides reach a destination other than their target species, because they are sprayed or spread across entire agricultural fields. Runoff can carry pesticides into aquatic environments while wind can carry them to other fields, grazing areas, human settlements and undeveloped areas, potentially affecting other species. Other problems emerge from poor production, transport and storage practices. Over time, repeated application increases pest resistance, while its effects on other species can facilitate the pest's resurgence. The project officers will ensure that vaccine will only be administered to target animals (cattle) hence no harm to non-target species.

4.1.5 Health

Pesticides can enter the body through inhalation of aerosols, accidental self-jabbing, or through dust and vapors that contain pesticides; through oral exposure by consuming food and water; and through skin exposure by direct contact or in some cases as reported from most counties drug abuse by use of pesticides as human drugs by pastoralists. The effects of pesticides on human health depend on the toxicity of the chemical and the length and magnitude of exposure. Farmers, vets, farm workers and their families experience the greatest exposure to pesticides through direct contact. Children are more susceptible and sensitive to pesticides, because they are still developing and have a weaker immune system than adults. Children may be more exposed due to their closer proximity to the ground and tendency to put unfamiliar objects in their mouth. Hand to mouth

contact depends on the child's age. Children under the age of six months are more likely to experience exposure from breast milk and inhalation of small particles. Pesticides can bio-accumulate in the body over time. The project has already procured PPEs which will be used by all the vaccinators, therefore minimizing cases of injury and exposure to the vaccines. The supervisors will ensure that children are kept away from vaccination crush sites.

4.1.6 Surface and Groundwater Contamination

Pesticides typically enter surface water when rainfall or irrigation exceeds the infiltration capacity of soil and resulting runoff then transports pesticides to streams, rivers, and other surface-water bodies. Contamination of groundwater may result directly if pesticide applications are adopted by the CDVS as the most preferred measure for pest management. Groundwater contamination may also occur from pesticide residue in surface water, such as drainages, streams, and municipal wastewater. There are four major routes through which pesticides reach the water: they may drift outside of the intended area when sprayed, may percolate, or leach, through soil, may be carried to the water as runoff, or may be spilled. Proper care will be taken by qualified personnel in delivering the vaccines to the animals, therefore effectively preventing spillage on the surface and ground water. Location of the crushes will be strategic avoiding marshy and those areas with stagnant water or run-off

4.1.7 Potential Site-related Health Concerns

- Consumption of animals under chemical pest control could cause health hazards to humans and animals within and around the project site.
- Certain kinds of chemical intoxication especially after drinking pesticide contaminated water. This is a crucial potential impact considering that most of the locals get drinking water from surface and groundwater sources.
- Skin, eye, and nose irritation.
- Possibility of cancers, neurologic, endocrine and reproductive problems form direct and indirect exposure to pesticides.
- Occupational health and safety risks. Long term inhalation of toxic pesticides sprayed, could eventually result in respiratory illnesses or disease conditions.

4.1.8 **Social risk**

The exercise can bring conflict among the beneficiaries. These clashes can happen when different beneficiaries meet with their livestock at the vaccination point at the same time. There will be competition of who is to be served first. Members of some marginalized communities may fail to avail their animals for the vaccination.

Social and/or professional misconduct by the vaccination team, handling of grievances/complaints arising out of the vaccination are some of the social risks foreseen with this sub project. Proper publicity and mobilization of the community to agree on dates and sites of vaccination will be undertaken. In place as county grievances redress committee to handle complaints/ grievances received from communities before, during and after vaccination campaign

This can be mitigated by undertaking the vaccination exercise in the respective Manyatta at a stipulated time. This can be achieved by first mapping the areas where the exercise will take place. Use of GRM team to deal with grievance before they scale upwards

4.3 COVID 19 ON LIVESTOCK VACINACTION

Spread of COVID-19 may increase during the vaccination exercise as farmers, herders, vaccinators, drivers, health officers and other staff monitoring the exercise congregate at the vaccination site. This will be mitigated by:

- Starting the vaccination exercise early enough in the morning so that there is no building up of large herds of animals or crowds of people.

- Strictly following the guidelines of the ministry of health of social distancing, wearing of face masks, washing hands with running water and soap or use of alcohol-based sanitizer.

- Keeping social distance: social distancing will be implemented and no large crowds of people will be allowed. Community will be required to organize themselves

- Screening of livestock keepers at the vaccination sites: Public health officer accompanying the teams will screen people on site using temperature monitors and those found to have fever immediately referred to nearest health care for further screening.

Table 10: PEST MANAGNENT PLAN

	Impact issue/Risk	Mitigation	Input	Indicator	Cost	Responsible person
A	At Procurement					
A1	Unnecessary delays at the collection point	Prior arrangement with personnel at point of issue	Airtime Internet	No of phone calls made to team leaders No of SMS sent vaccination team leaders	130,200	Chief officer & CDVS
A2	Failure of accountability on the receipt of vaccines	Enter the vaccines in the vaccine's ledger	1) S12 2) S13 Training Vaccines ledger	No of vaccines entered into the ledger		Vet store Manager
A3	Expired/ short expiry vaccines/Less No. of doses	Check expiry dates before packing and collection time Communication with the personnel at the ice replenishment center. Communication with the store man and the off loaders	Airtime for communication Telephone contacts of these personnel Labor for offloading Personal protective Clothing	- No of properly packed vaccines - No of non-expired/ expired vaccines - No of personnel trained on checking the vaccines		CDVS
A4	Biosafety of transit Team exposure due to Spillage	Guidelines for emergency action upon exposure to the vaccines (antidote) Provision of first aid kits Provision of antidotes for field emergency use. Provision of Personal protective clothing to the VO, Driver Receptacles for disposal	PPEs Receptacles for waste disposal	- No of PPEs bought and worn - No of first aid kits used - No of wastes bins - Volume of	102,000	CO/ CDVS

		Insurance of Personnel		wastes disposed - No of antidotes used		

B	On transit					
	Impact issue/Risk	Mitigation	Input	Monitorable indicator	Cost	Responsible p
B1	Vehicle breakdown	Authority letter from CO to drive outside working hours Use of a serviceable vehicle in good condition. Have alternative standby Vehicle Collaborative arrangement with health department for transport of vaccines like use of ambulances. Use of designated drivers	Serviceable vehicle Fuel Competent driver Having an alternative driver.	a) Quantity of fuel used b) No of detail orders used C) Number of standby/ alternative vehicles a	200,000	Chief
B2	Poor communication	Allocate enough airtime while travelling from Garissa to Nairobi and back.	airtime	No of phone call/SMS sent	25,000	Chief officer
B3	Poor cold chain maintenance on Transit	Use of cool boxes and carton coolers with enough ice packs for collecting vaccines Establishing ice replenishment center in Masalani town Use of ETMs Having A separate cool box for ice packs only Cold chain team that will be monitoring ice and replenishing where appropriate because of the vastness of the County.	Cool boxes ETMs Ice packs	a) Fuel consumption b) No of temperature monitors installed No of vehicles with motorized cool boxes	50,000	CDVS
B4	Inadequate staff at the store to offload and count the vaccine	Staff mobilization in good time both casuals and regulars.	Lunches for the offloading and	No of off loaders given lunches	25,000	Chief officer

			counting staff			
B5	Biosafety of Transit Team/ Exposure due to Spillage	Provision of Personal protective clothing to the store man, off-loading staff Provision of clean water at the store Receptacles for disposal	No of PPEs procured No of Receptacles for waste disposal No / Presence of Subordinate staff responsible for cleanliness	a) No of vaccines broken /damaged b) No of PPEs issued No of waste receptacles availed	10,000	Chief officer/

C	GARISSA COLD STORE					
	Impact issue/Risk	Mitigation	Input	Indicators	Cost	Responsible person
C1	Poor cold chain maintenance on storage	Deep freezers and fridges. Alternative sources of power in case electricity fails e.g. Generators Monitoring by the store keeper. Alternative store keeper in case of absence. Use of ETMs Preparation of ice packs	Freezers and fridges Ice packs Generator ETMs	a) No of deep freezers and fridges bought b) No of generators availed for alternative power No of ice parks prepared	60,000	Chief officer/CDVS
C2	Power outage/ fluctuations/ cut-outs	Negotiate with County commissioner on the use of his stand by generator.	Generator 10Kva with automatic changeover Fuel		20,000	Chief officer/CDVS

		Installation of a standby generator Pay Electricity bills in time	Money for installation			
C3	Inadequate storage capacity	Procurement of more freezers Alternative storage such as Garissa VIL, County Referral hospital Repair the two broken down deep freezers and 2 fridges	Finances to procure additional freezers and fridges at the level of the Sub County. Airtime to contact the alternative stores. Finances to repair the broken down fridges.	a) Amount of funds allocated for repair and maintenance b) No of calls made No of back up freezers No of freezers/ fridges repaired	30,000	Chief officer/CDVS
C4	Faulty deep freezer/ fridges	Frequent checks of the freezers and fridges Have a backup freezer Garissa County Referral hospital (NCRH) fridges	A developed check list Funds for repairs Airtime to communicate to NCRH	No of faulty fridges/ freezers repaired No of back-up freezers	5,000	CDVS
C5	Inadequate cold chain materials	Procure polythene enough tubing for making ice packs Or alternatively dry ice	Polythene tubing Dry ice/frozen Carbon dioxide	No of polythene tubing bought No of dry ice procured	70,000	Vet cold chain/store manager
C6	COVID-19 infection and spread at the store	1. Surfaces (e.g., desks and tables) and objects (e.g., telephones, keyboards) to be wiped with disinfectant regularly 2. Maintain a water dispenser with soap or alcohol sanitizer for cleaning hands regularly; Place these at prominent places around the	Face mask 2) Gloves 3) Sanitizer 4) Posters 5) Bin 6) Hand washing containers 7) Soap	No of COVID-19 sensitization meeting. No of hand washing stations established No of sanitizers procured	50,000	CPTL/CO/ CDVS

		workplace. Make sure these dispensers are regularly refilled 3. Maintain at least 1 meter (3 feet) distance from others by establishing indicative signs for the benefit of officers collecting vaccines 4. Preventing crowding by establishing appointment for officers from the sub counties so that they come only at designated time and day. 5. Display warning posters that warn or give guidance on COVID -19 6. Avoiding touching of eyes, nose and mouth and promoting the use of gloves. 7. Following good respiratory hygiene by covering mouth and nose with face mask or using bent elbow or tissue when coughing or sneezing. 8. Proper disposal of used tissue gloves and masks 9. In case of symptoms such as cough, headache, mild fever, seek medical attention Stay home and self-isolate even until recovery. From possible COVID19 and other viruses. Identify substitute officers.	8) Disinfectant 9) Infra -red temperature monitors	No of temperature monitors procured		

		10. Follow the directions of local health authority. 11. Keep up to date on the latest information from trusted sources, 12. Use gloves regularly 13. Wipe surfaces regularly				
C7	Inadequate monitoring of temperature	Regular monitoring of the temperature of the freezers using a temperature tracking sheet and a thermometer	Temperature tracing sheet. Thermometer	a) No of functioning thermometers No of Temperature tracing data sheets completed/ No of temperature monitoring conducted		
C8	Fire incidences	Installation of fire extinguishers in the store.	Training of fire fighting Fire extinguishers	a) No training for firefighting b) No of fire extinguishers installed c) No of fire drills		
C9	Biosafety of Vaccination Team /Exposure due to Spillage	Provision of Personal protective clothing to the Store man, Provision of clean water at the store Receptacles for disposal	PPEs Storage Water Tank Receptacles for waste disposal	a) No of broken/damaged vaccines No of PPEs availed		

D	**Transit to the Vaccination site**		**Transit to the Vaccination site**		**Transit to the**	

					Vaccination site	
D1	Cold burns by ice packs as you collect vaccine from the refrigerator and packing in the cool box	Get proper protective gear (industrial gloves)	Industrial gloves	No of surgical gloves and other PPEs available	10,000	CDVS
D2	Picking of expired or leaking vaccines and diluents from the store when dates are not checked well	Verification of the expiry of the vaccines; Having a check list to ensure the correct quantity and number of equipment are taken. Keeping a vaccine stores list indicating dates of vaccine expiry		No of checklists developed No of expired vaccines		
D3	Forgetting some vaccination equipment and vaccines	Prepare checklist	-plastic tubes for packing vaccines B) Vaccination equipment Needles (hypodermic) G14 and G16 -automatic syringes 50mls and 30mls -disposable syringes 20mls,10mls and 5mls		No of checklists completed Incidences of named vaccines/ equipment / accessories missing	

			-disposable needles G 18 11/2 Checklist for vaccines, equipment and accessories			
D4	COVID-19 infection and spread during transportation of teams to and from the field	1) Officers involved to wear masks 2) Vehicles to be provided with alcohol hand sanitizers. 3) Officers to wear gloves. 4) Maintain a social distance in every vehicle (Half normal capacity as per COVID 19 guidelines provided by MOH) 5) Make several trips to the field to minimize crowding in vehicles	- Face masks - No of sanitizers	No of Covid-19 cases reported/ suspected % of personnel and herders with requisite PPEs No of hand-washing/ sanitizing facilities installed, Etc.	50,000	Team leader
D5	Vehicle breakdown	Use of a serviceable vehicle in good condition. Have alternative standby Vehicle	Serviceable vehicle Fuel Competent driver	a) DSA and fuel used No of detail		

		Collaborative arrangement with health department for transport of vaccines.	Having an alternative driver.	orders requested No of stand-by vehicles No of cases of vehicle breakdown		
D6	Inadequate adherence to the protocol of acquisition of vaccines from the stores	All officers including VO should be sensitized on the need to follow the protocols	Memo produced and circulated to all relevant persons	a) No memos developed No of sensitizations conducted / No of officers sensitized of vaccination protocols		
D7	Breakdown of Cold Chain	Procure Gas/Solar Freezer for interior Stations, Motorized Cool Boxes, New Cool Boxes, Proper icepacks Preparing of makeshift shade at Vaccination Sites	Gas Solar Panels Power Inverters	No. of new cool boxes procured No of solar freezers List of stakeholders who can	25,000	

		Mapping out Stakeholders who can support		provide support		
D8	Biosafety of Vaccination Team /Exposure due to Spillage	Provision of Personal protective clothing to the vaccination team, Receptacles for disposal	PPEs Receptacles for waste disposal	a) No. of PPEs available No. of waste receptacles available		

E	Actual Vaccination					
E1	Lack of coordination of the program.	Pre vaccination meeting Carrying Out Proper Publicity Mapping Out Areas With Livestock In Advance Proper Planning Of Vaccination Schedule/Program Quality crush pens to help in controlling the animals when vaccinating.	Consulting Local Administration And Herdsmen Consultation With Vaccination Team	a) **No. of consultation meetings held** b) **No. of minutes written Number crushes repaired/ constructed**	50,000	(CDVS) Vaccination team leaders
E2	Poor Quality Equipment which breaks during vaccination	Procuring Best Quality Equipment	Automatic Syringes, Extra Glass Barrels, Needles Waste Receptacles	a) **No. of automatic syringes, extra glass barrels and needles procured**	15,000	CO – L/stock CDVS

E3	Misconduct/ Unethical behavior by officers	Maintain high level of discipline and observe professional ethics - Tough disciplinary measures to be instilled to the culprits	COR Code of Ethics	**No. of show cause/warning letters written and served** **No of cases of unethical behavior**		CO – L/stock CDVS
E4	Failure to present animals for vaccination	Proper and extensive Publicity Consult with the community on moat the convenient day for vaccination	Vaccination program Use of all local languages for publicity Engage the local and area political leaders in publicity. Use the media (TV, Radio, Newspapers) -posters -public address -Banners	a) no. of planning for vaccination program developed No. publicity campaigns through radios, posters, SMS made.	150,000	CO – L/stock CDVS Local leaders (chiefs)
E5	Injuries and exposures to the hazardous chemicals. These include the physical injuries to the personnel, farmers and animals.	Procuring of Protective Gear and Antidotes Establishing good crushes	Gum Boots, Caps, Face Masks, Overalls, Gloves	No of PPEs No of accidents/ incidences No of new crushes constructed/ old ones repaired		(CDVS) CO-L/stock
E6	Snake/Spider/Scorpion Bites And Stings	Procuring of Anti-venoms	Anti-venoms Gauge 21 Needles and Syringes	No. of anti- venoms bought No of cases of snake bites, stings, etc. reported	25,000	CO – L/stock CDVS
E7	Poor Restraint Of Livestock	Quality crush pens to help in controlling the animals when vaccinating.	Mobile crushes and Finances	No. of crushes repaired Cases of poor restraint of animals	30,000	CO – L/stock CDVS

		Establishing new Crushes and repairing of existing ones				
E8	Indiscipline Cases	Counseling to the team Reprimanding the culprits Replacing the culprits	Team Working	No. of indiscipline cases reported		Dr Kinyua (CDVS) Vaccination TEAM LEADER
E9	Unfavorable weather condition during the vaccination exercise	Good Planning Preparing A Flexible Program				Vaccination Supervisors
E10	Livestock in inaccessible areas	Camping Gear		a) no. of well-maintained vehicles available amount of fuel consumed No of vaccinations conducted in inaccessible areas	20,000	CO/CDVS
E11	Poor communication network coverage	Provide Satellite Phones Publicity Local FM Stations	Air Time PAS Posters DSA	a) No. of phone calls b) No. of posters displayed No. of talk shows made	5000	CO/ CDVS
E12	Sick animals brought for Vaccination	Procuring Support Treatment Drugs	Finance	No. of supportive drugs procured No of sic animals provided with supportive treatment	2,000,000	CO/ CDVS
E13	Vaccine Wastage	Estimate the numbers of Livestock per site during publicity Reconstituting vaccine in small quantities	Vaccine registers and livestock manifests	a) No. of vaccines procured		TEAM LEADER/ CDVS

E14	Vaccination Team storing their drinks in the vaccine cool boxes	Having an extra Cool Box for the team's drinks		No of (extra) cool boxes procured		CDVS
E15	Sick animals/ animals reacting to vaccine.	-Provide essential antibiotics -Supportive therapy drug i.e. -- multivitamin -Antidote -Alamycin spray -Antihistamine -Anti venom -Iodine -Cotton wool -Disposable syringes and needles	Finances for procuring drugs	No. of supportive drugs procured No of cases of animals reacting to vaccines No of sick animals provided with supportive treatment	2,000,000	CO- L/stock
E16	Pastoralists picking and reusing some wastes (dewormer bottles)	Create awareness during publicity that all the wastes are hazardous and will be carried for proper disposal and accountability; Cold chain supervision team will also be assisting in offloading excess used vaccine and drug vials and deliver them to County stores for proper disposal.	DSA	a) No. of waste receptacles available Volume of wastes disposed No of community members sensitized on vaccination wastes	10,000	VACCINATION TEAM LEADER
E17	Injuries to the technical officers during the vaccination exercise	PPE (personal Protective Equipment). Insurance cover for the Private practitioners	-Cap -Dust mask -Overall -Leather boots -Disposable gloves -Rain coat	No of PPEs bought No of injury cases reported.	10,000	CDVS

			-Fully equipped first aid kit per team. -antidote			
	(b) Injuries to the animal handlers	Properly restrained animals Insurance cover for the Non GoK staff	-Properly constructed crushes -First aid kit -antidote	No of incidence reported.		CDVS
	(c) Injury to the Animals	Proper handling Handle adult and young animals separately	-Aerosol sprays -Antibiotics - Cotton wool	No of cases of animal injuries reported	12,000	Vaccination Team leader
E18	Spread of Covid-19 during the actual vaccination process	-Provide water, soap, sanitizers and temperature guns. -All persons to wear masks, -Animals to be vaccinated as soon as they arrive at the site, -Check the temperature of all participating in the vaccination exercise each day.	-Face Masks, -Alcohol based sanitizers, -Clean running water. -Soap -Temperature guns	No of PPEs provided No of thermo guns procured No of sensitization campaigns on COVID 19	40,000	CPC, CDVS, Director Public Health
F	Post Vaccination					
F1	Inadequate labeling especially of vaccines returned from the field,	Supervisors from the field should clearly inform the cold chain manager of the vaccines, the batch numbers and expiry dates of the vaccines returning from the field before receiving them for storage	Water proof stickers clearly labeled with the details of vaccine details	a) Vaccination report No. of unused vaccines with labels		Vaccination Supervisors / Leaders
F2	Biosafety of Vaccination Team /Exposure due to Spillage	Provision of Personal protective clothing to the store man, off-loading staff Provision of clean water at the store	PPEs Receptacles for waste disposal	a) No. of PPEs available b) Volume of water provided	10,000	CO/CDVS

		Receptacles for disposal	Subordinate staff responsible for cleanliness	No of waste receptacle		
G	Disposal of Vet Waste					
G1	Environmental contamination / pollution -misuse of the uncollected containers e.g. use for drinking water by children -breeding grounds for mosquitoes -can be refilled by unscrupulous people with other substances e.g. water and sold as counterfeits -can cause physical injuries to both human and animals e,g. broken glass vials, glass barrels, needles - plastics used as icepacks can be swallowed by children and animals -blockage of water ways and poisoning of aquatic ways in case of run off - needles, Disposable syringes and vials left can become a source of disease transmission. Sharps	Sharps immediately placed in bio-hazard containers or sharp receptors. Receptors used to three-quarter full All wastes at the vaccination sites to be collected in dust-bins which will later be transported to Veterinary Headquarters for proper disposal	Biohazard sharp containers. 2 sharps containers per group. Licensed and accredited Incinerators- NCRH, Cottage Hospital Transport to disposal site N/B- disposal fees- infectious waste per 1kg- 100ksh, Expired drugs and discarded drugs per 1kg - 200ksh Sharps- 200ksh per 1 safety box	No. of waste receptacles procured No of cases of misuse of used containers by the community Volume of wastes incinerated/ disposed	10,000	CDVS

	(vaccination needles, vacutainer needles, scalpel blades, broken glasses)					
G2	Environmental contamination and reuse by people from plastics Infectious e.g. vaccine vials, reconstitution syringes & other drugs vials	Segregation, collection, storage of infectious material for incineration	One plastic receptacle per day per team	Cases of environmental contamination reported No of receptacles provided	50,000	CDVS
G3	Being consumed by animals causing intestinal obstructions:	Segregation, collection, storage of infectious material for incineration	One plastic receptacle per day per team			CDVS
	Impact issue/ Risk	Mitigation	Input		Cost	Responsible person
G4	Biosafety of Disposal Team /Exposure due to Spillage	Provision of Personal protective clothing to the store man, off-loading staff Provision of clean water at the store Receptacles for disposal	PPEs Receptacles for waste disposal Subordinate staff responsible for cleanliness		10,000	CDVS

Table 11: Implementation schedule

Activity	**Scheduled time**								
	February 2020			**March** 2021			April 2021		
Preparation of the pest management plan									
Holding planning meeting									
Procuring of vaccines and other equipment									
Pre-surveillance exercise									
Mobilization and sensitization exercise									
Vaccine collection from KEVEVAPI									
Actual vaccination									
Monitoring and backstopping									
Post surveillance exercice (M&E)									

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

The pest management anticipates that there will be minimal negative impacts associated with the vaccination, however the positive impacts are of social and economic importance and contributes towards increasing livestock production in the County through the control of diseases and enhanced resilience to climate change. The plan provides information for stakeholders on how to understand and manage the vaccination process by reducing personal and environmental health risks associated with pesticide use. Close working relationship between the county project coordination unit and all the other relevant stakeholders will help minimize the risk. If the proponent and the community undertake the necessary measures to mitigate the few negative impacts as identified in this PMP, then there should be no reason to prevent the project from proceeding on as planned**.**

ANNEXURES

Annex 1: VACCINE COLLECTION CHECKLIST

MINISTRY OF AGRICULTURE, LIVESTOCK & FISHERIES

COUNTY GOVERMENT OF GARISSA

VACCINE COLLECTION CHECKLIST

A**. Vaccine Details**

Date	Name of vaccine	Batch Number	Date of expiry	Packaging	Labeling
1					
2					

B. Vaccine issued by

Name	Personal Number	Institution	Signature
1			
2			

C. Vaccine collected by:

Name	Personal Number	Institution	Signature
1			
2			

D. Motor vehicle Details

Vehicle registration No. …….

Annex 2: PARTICIPANTS LIST

MINISTRY OF AGRICULTURE, LIVESTOCK & FISHERIES

COUNTY GOVERMENT OF GARISSA

Activity ……. Venue: ……
Team Leader ……...

No.	Name	P/No. or ID/No.	M/F	Community/ Organizations	Mobile Number	Thumb Print/ Signature
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13						
14						
15						

Annex 3: DAILY FORMS

MINISTRY OF AGRICULTURE, LIVESTOCK & FISHERIES
COUNTY GOVERMENT OF GARISSA

VETERINARY DEPARTMENT

		GPS (in decimal degrees)																					
Ward name	***Site***	***Long***	***Lat***	***# HH Covered***		***CCPP***	***PPR***		***RVF***		***Deworming***				***Acaricides application***				***Trypss***	***Others (specify in recording form)***			
				Male	***Fema***	***Goats***	***Goats***	***Sheep***	***Goats***	***Sheep***	***Goat***	***Sheep***	***Cattle***	***Camel***	***Goat***	***Sheep***	***Cattle***	***Camel***	***Camel***	***Goat***	***Sheep***	***Cattle***	***Camel***
e.g Iftin	e.g Elderti	39.0849	0.7654	14	12	4300	4300	2500	4300	2500	4300	2500	1200	500	4300	2500	1200	500	50	5	90	2	3
Totals																							

Annex 4 SUB PROJECT BUDGET

(c) County Contribution to the campaign

	Description of intervention category	**Total cost**
1	Sensitization of the vet teams and Launch of the Campaign	411,550
2	Procurement of Vaccines,	1,214,000
3	Procurement of drugs and chemicals	2,024,450
4	Facilitation for veterinary teams	3,708,000
5	Supervision and technical backstopping	462,000
6	Fuel for the activity	180,000
	Total funds requested	**8,000,000**

The County government of Garissa will provide the following in kind support and resources to make the campaign a success.

#	Item	Quantities	Estimated Value
1	4WD Vehicles - KM Mileage for 18 days	5	144,000
2	LSD Vaccines - doses	53000	371,000
3	PPR Vaccines - doses	100,000	1,200,000
4	SGP Vaccines	97700	683,900
6	Cold-storage of Vaccines and Ice supply	256	12,800
	Electricity for cold chain - 18 days	1	12,000
7	Large cool boxes	8	128,000
8	Vaccine carriers	8	40,000
9	Automatic syringes for Vaccination - 50 CC	16	80,000

10	Automatic syringes for Vaccination - 30 CC	12	48,000
11	Automatic syringes for vaccination 10 CC	8	24,000
12	Staff time - 8 hours/day - 34 staff	272	1,360,000
	Total Value of Contribution		**4,103,700**

The totals Value of the campaign is therefore estimated to be K.sh. 12,103,700 (K.sh 8,000,000 by KCSAP and K.sh. 4,103,700 by County Government of Garissa).

The itemized cost of the resource category requested from KCSAP is provided in the tables below:

(I) Sensitization of the Veterinary teams and Launch

Category of team members	Number in team	JG	Rate per day	Number of teams	Number of days	Total cost
Veterinary officers	1	L-P	7000	4	2	56,000
Livestock health officers	2	K	7000	4	2	112,000
Animal health technicians	3	J	4200	4	2	100,800
Drivers	2	H	4200	4	2	67,200
Cold chain back up and waste disposal	2	J	4200	1	2	16,800
Lunches for support team	6	P-R	1500	1	1	9,000
Teas, water and sundries	30	x	400	1	1	12,000
Launch	1	x	31750	1	1	31,750
Stationeries - pen and notebook	30	x	200	1	1	6,000
						411,550

(ii) Allowance for the veterinary teams

Category of team members	Number in team	JG	Rate per day	Number of teams	Number of days	Total cost
Veterinary officers	1	L-P	8400	4	18	604,800
Livestock health officers	2	K	7000	4	18	1,008,000
Animal health technicians	3	J	4200	4	18	907,200
Community disease reporters	2		3000	4	18	432,000
Drivers	2	H	4200	4	18	604,800
Cold chain back up and waste disposal	2	J	4200	1	18	151,200
Total cost						**3,708,000**

(iii) Allowance for the supervision team

Category of team members	Number in team	JG	Rate per day	Number of teams	Number of days	Total cost
County Director Livestock development	1	R	8400	1	10	84,000
Representative from SFAL	2	R	8400	1	10	168,000
Representative from CSG	2	R	8400	1	10	168,000
Driver	1	G	4200	1	10	42,000
Total cost supervision						**462,000**

(iv) Fuel for the activity

Diesel for the teams	Qty per team	Unit cost	No. of teams	Total cost
Vaccination teams	300	100	4	120,000
Cold chain back up and waste disposal team	300	100	1	30,000
Supervision team	300	100	1	30,000
Total cost				**180,000**

(v) Procurement of Vaccines

Item description	Unit of measure	Units	Unit Cost	Total Cost	Source
Lumpy skin disease Vaccine	100 dose Vials	500	700	350,000	Kevevapi
Contagious caprine pleuropneumonia Vaccine	100 dose Vials	720	1200	864,000	Kevevapi
Total cost Vaccines				**1,214,000**	

(vi) Procurement of drugs and Chemicals

Item description	Unit of measure	Units	Unit Cost	Total Cost	Source
Anthelmintics (Albendazole 10%)	Liters	800	750	600,000	local vendors
Ectopor - Cypermethrine 2%	500 ml bottles	613	1650	1,011,450	local vendors
Oxytetracycline 20%	50 ml Vials	240	600	144,000	local vendors
Veridium	125 gm	200	250	50,000	local vendors
Diceptoprim boluses	200 mg boluses	332	50	16,600	local vendors
Ivermectin 1%	50 ml bottles	180	350	63,000	local vendors
Multiject	5gm bottle	150	200	30,000	local vendors
Dexamethasone	50 ml bottles	120	270	32,400	local vendors
Coccid - Amprolium hydrochloride	50 gm sachet	200	210	42,000	local vendors
Debush 5% EC	250 ml	50	700	35,000	local vendors
Lumpy skin disease Vaccine	100 dose Vials	500			
Contagious caprine pleuropneumonia Vaccine	100 dose Vials	720			
Total cost drugs and chemicals				**2,024,450**	