Kenya Climate Smart Agriculture Project

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ENHANCEMENT OF LIVELIHOOD THROUGH VECTOR AND

DISEASE CONTROL IN LIVESTOCK

PEST MANAGEMENT PLAN (PMP)

MARCH 2021

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ABBREVIATIONS AND ACRONYMS

BQ	Black Quarter
CCOs	County Chief Officers
CCPP	Contagious Caprine Pleuropneumonia
CDPH	County Department of Public Health
CDR	Community Disease Reporters
CDVS	County Director of Veterinary Services
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
DLF	Department of Livestock and Fisheries
FCDC	Frontier Counties Development Council
GoK	Government of Kenya
KEVEVAPI	Kenya Veterinary Vaccine Production Institute
KCSAP	Kenya Climate Smart Agriculture Project
KVB	Kenya Veterinary Board
LHO	Livestock Health Officer
M&E	Monitoring and Evaluation
MPs	Members of Parliament
NEMA	National Environment Management Authority
OP	Operational policy
PMC	Project Management Committee
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
VSVPP	Veterinary Surgeon and Veterinary Para-Professional
WB	World Bank
WHO	World Health Organization

EXECUTIVE SUMMARY

Tana River County is one of the 47 counties in Kenya, the county has an approximate population of 315,941(Male: 158,550, female: 157,391 and 2 intersex) with 66,984 households (KNBS, 2019 Census) and covers an area of 38,862.2 Km^2. The County is administratively subdivided into three Sub Counties, namely; Tana Delta, Tana North, and Tana River. The county has 15 administrative wards. The main economic activity in Tana River County is pastoralism and subsistence farming. The common breeds of livestock reared are goats, cattle, camels, sheep, donkeys and chicken. However, the livestock sector faces numerous challenges including emergence of frequent notifiable diseases such as Peste Des Petit Ruminant (PPR), Contagious Caprine Pleuropneumonia (CCPP), Sheep and Goat Pox (SGP) and Black quarter/Anthrax among others.

The Frontier Counties Development Council (FCDC) has recognized the importance of common approaches to livestock disease control, and has developed the Common Strategies to help realize control of livestock diseases across the FCDC region. The County Government of Tana River has in her County Integrated Development Plan (CIDP) 2018-2022 planned 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 county veterinary service of Tana River.

In a bid to control the aforementioned livestock diseases in Tana River County, the County Ministry of Agriculture, Irrigation, Livestock and Fisheries through the County Department of Veterinary Services has requested Kenya Climate Smart Agriculture (KCSAP) to support this vaccination exercise as one of its sub-projects.

In order to ensure successful implementation of the vaccination exercise in an environmentally and socially friendly manner with minimal adverse environmental and social impacts while maximizing the positive impacts, Pest Management Plan (PMP) is developed to guide the implementation process. The IPMP helps in identification of environmental and social adverse impacts of the vaccination exercise and the relevant mitigation measures against them.

Pest Management Plan (IPMP) is a tool prepared in conformation to the World Bank Group Operational Policies on environmental and social risk management especially OP4.09 (Pest Management) and OP4.01 (Environmental Assessment) and 4.10 (Vulnerable and Marginalizes Groups- where marginalized groups are identified and therefore need to engage them during the exercise). The policies support safe, effective, and environmentally sound pest management practices and promote the use of biological and environmental control methods. Preparation of this plan also takes into consideration important national protocols and

regulatory acts such as The National Environment Management Authority's (NEMA) protocol, Ministry of Health protocol in containment of Covid-19 and Veterinary Surgeons and Veterinary Paraprofessional acts (VSVPP 2011). The process for preparation of this PMP involved a multi-sector working groups comprising of Sub-county veterinary officers, NEMA and County Project Coordination unit (CPCU) and Ministry of Health.

Environmental and Social Safeguard screening has been done on the proposed project which has identified several positive impacts and a few negative impacts whose mitigation measures have been highlighted in this Pest Management Plan (PMP). The anticipated positive impacts of vaccination include reduced mortality in camel, cattle, sheep and goat, improved quantity and quality of milk and beef production, and reduced chances of loss of livelihoods for the pastoralists.

Negative impacts are wastes from empty vaccine containers and used/damaged needles, accidents and injuries, exposure to Covid-19, conflicts as well as exclusion of some beneficiaries due to some cultural beliefs. Measures to mitigate these impacts have been presented in this IPMP and follow National Environment Management Authority's (NEMA) protocols and World Bank Group Operational Policies on environmental and social risk management especially OP4.09 (Pest Management) and OP4.01 (Environmental Assessment). The wastes will be managed by ensuring that they are all collected and disposed-off safely at designated licensed incinerators i.e. at the sub-county hospitals or Tana River County Referral Hospital. The waste will be separated into different categories and portable waste collection bins provided. Ministry of Health protocol in containment of Covid-19 will strictly be adhered to, to minimize risk of exposure and spread of Corona Virus disease. Proper sensitization and mobilization will also be done to mitigate the risk of exclusion of beneficiaries.

The document defines actions to protect pesticides against extreme environmental conditions (cold-chain management) that would otherwise limit its effectiveness in controlling livestock diseases; a dynamic community communication strategy and consultative process that promotes inclusivity and community decision making in-order to increase awareness and participation; solid, chemical and biological wastes management; and lastly, delivery of vaccination while ensuring safety of livestock and humans involved against physical, chemical and biological hazards more so at such time of COVID-19 pandemic.

This IPMP is an elaborate plan for implementation of measures that ensure social and environmental protection before, during and after application of pesticides in livestock disease control activities (vaccination campaign). It identifies pesticides handling, storage, transportation, delivery (to the animal) and disposal risks that may be encountered and their

potential effects on human, livestock and environmental health. For each risk identified, mitigation measures have been delineated for implementation.

While disease control is a devolved function, KSCAP has good working relation with County Government of Tana River. Together with County Government the program has in the past supported one mass vaccination campaigns targeting goats, sheep, camel and cattle against PPR, RVF, CCPP and BQ.

During implementation of this plan KSCAP and Department of Veterinary will ensure the COVID-19 infection prevention measures are implemented at all interaction level among the Veterinary teams and with the community. The Veterinary teams will use personal protective equipment, frequently hand-wash with soaps and also maintain social distance during and after activities. Public health officer will accompany the team and sensitize the community on COVID 19 containment measures outlined in Ministry of health guidelines and protocols.

The project is estimated to cost KSH 23,308,800 out of which KSH 19,271,300 will be paid by KCSAP, while the County Government of Tana River and the community will contribute the rest, KSH 4,037,500. The sub project funds will be managed under CPCU project account including PMP activities. The exercise targets Sheep, Goats, Cattle and Camels. The proposed vaccination will be carried out in the entire Tana River County.

The PMP was developed through literature review of relevant documents/materials, existing national policies and legislation as well as World Bank environment and social Safeguard Policies, interviews and public/ stakeholders' consultation. Interviews with key informants from relevant stakeholders in livestock production as well as veterinary officers were conducted in order to understand the impacts of the vaccines on public health and environment. Public consultation meetings took place during development of this IPMP

CHAPTER 1: BACKGROUND INFORMATION

1.1 Introduction

Tana River County is one of the six Counties in the Coast Region. It borders Kitui County to the West, Garissa County to the North East, Isiolo County to the North, Lamu County to the South East and Kilifi County to the South (figure 1). The county lies between latitudes $0^0$0'53" and $2^0$0'41'' South and longitudes $38^0$25'43" and $40^0$15' East. The county has a total area of 38,862.2 Km^2 (Table 1.1) with a projected population of 315,941(Male: 158,550, female: 157,391 and 2 intersex) with 66,984 households(KNBS, 2019) and covers about 76 Km of the coastal strip. Administratively the county is subdivided into three sub counties Tana North (5 wards), Tana River (4 wards), Tana Delta (6 wards).

Table 1 Administrative Units in Tana River County

Constituency	**Area(km2)**	**No. of wards**	**No. of Locations**	**No. of Sub-Locations**
Bura	13,191.5	5	16	25
Galole	9,657.3	4	21	45
Garsen	16,013.4	6	17	41
Total	**38,862.2**	**15**	**54**	**109**

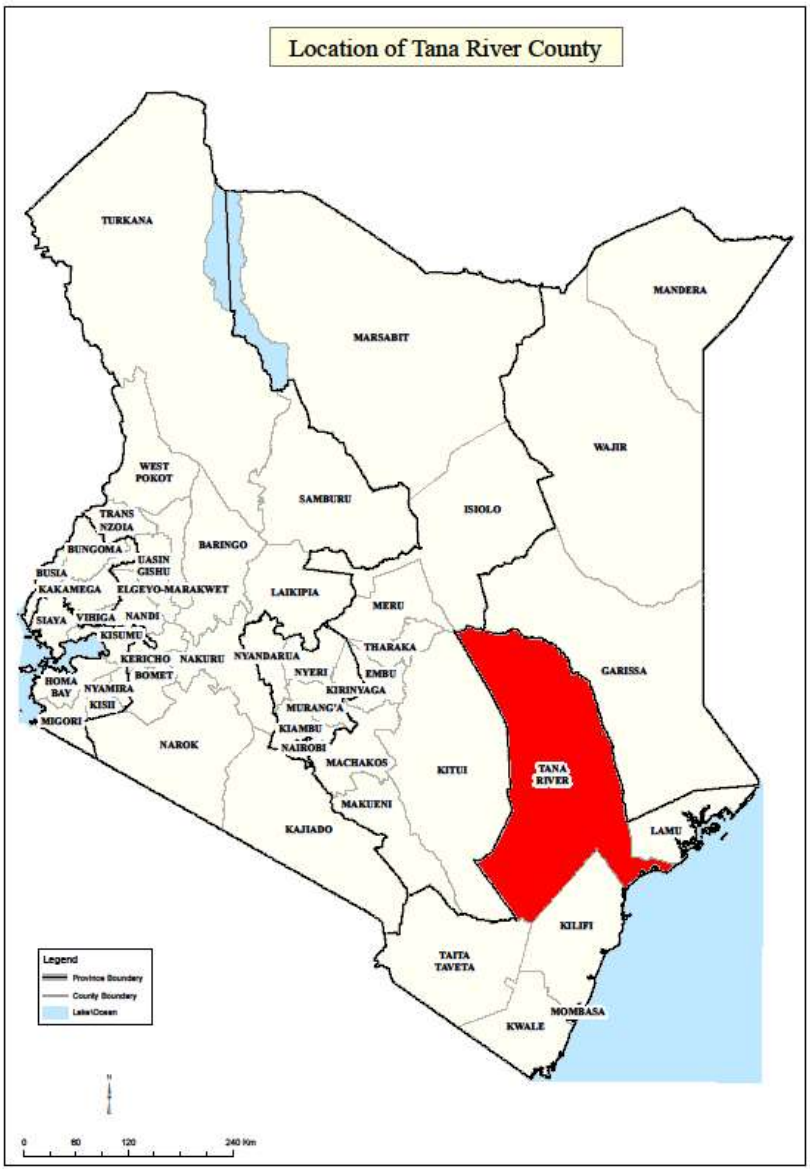

Figure 1: Map of Kenya showing relative location of Tana River

The region has a hot and dry climate within ecological zones ranging from III (in the very high grounds) to VII (in the plains or lowlands). Average annual temperatures are about 30$_0$C with the highest being 41$_0$C around January-March and the lowest being 20.6$_0$C around June-July. Rainfall is low, bimodal, erratic and conventional in nature. The total annual rainfall ranges between 280 mm and 900 mm with long rains occurring in April and May, short rains in October and November with November being the wettest month. The Inter Tropical Conventional Zone (ITCZ), which influences the wind and non-seasonal air pattern for the River Tana, determines the amount of rainfall along the river line. The dry climate in the hinterland can only support nomadic pastoralism. The vegetation ranges from scrubland to thorny thickets within the riverine area. Shrubs and annual grasses dominate most parts of the region. However, there are enclaves of trees and perennial grasses dominating wetter parts. An invasive tree species called *Prosopis Juliflora*, commonly

known in the area as '*Mathenge*' (named after the person who introduced it) has spread rapidly in the area and is threatening to replace most of the indigenous vegetation. It was introduced for fuel-wood production in the Bura Pilot Irrigation Scheme. It grows fast and chokes other vegetation, watering points and the canals, and is colonizing most of the areas that are not cropped, including the riparian environments.

The most striking topographical feature is the river Tana that traverses the county from the Aberdares in the North to the Indian Ocean in the South covering a stretch of approximately 500km. Besides the river Tana, there are several seasonal rivers in the county popularly known as *lagas*, which flow in a west-east direction from Kitui and Makueni Counties draining into river Tana and eventually into the Indian Ocean. The river beds support livestock as well as wildlife during the dry season since they have high ability to retain water. River beds are most appropriate sites for shallow wells, sub-surface dams as well as earth pans.

The county has three livelihoods zones, namely; pastoral, marginal and marginal mixed zones. The main economic activity in Tana River County is livestock keeping and crop farming, contributing approximately 82% of the total household income.

The county experiences climate variabilities, which leads to prolonged droughts, famine, and disruption of livelihood systems such as extreme floods that destroys the investment of farmers, invasion of desert locusts that destroy vegetation and cause environmental degradation. The desert locusts first entered Tana North sub-county on 16th May 2020 causing devastating impact on pastures and crops. It has also experienced COVID-19 pandemic that resulted in disruption of business and other livelihood sources.

The main species of Livestock kept include camel, cattle, goats, sheep, donkeys, bees and poultry (Table 1). Approximately 95 percent of pastoralist households in Tana River derive their income from the livestock sub-sector.

Livestock production in the county faces serious threats from livestock disease outbreak and condition. The common(Endemic) livestock Diseases include; CBPP, Trypanosomiasis, Brucellosis, Mange, CCPP, PPR, Enterotoxaemia and infestations with worms, lice, ticks and flea. The common/recent outbreaks include RVF, Hemorrhagic septicemia and Rabies. The common nutritional related conditions during drought include abomasal impactions (due to sand feeding) in Goats and Cattle. The main risk factors for disease outbreaks include frequent movement of susceptible herd , malnutrition, overstocking and poor husbandry.

Table 2 Livestock population in Tana River County, 2021

TYPE	POPULATION
Cattle	271,833
Goats	590,856
Sheep	448,066
Camels	53,298
Poultry	103,169
Donkeys	15,317
TOTAL	**1,549,200**

(KNBS, 2019)

1.2 Vaccination Justification

Due to prolonged rains that occur in Tana River County, there is a pattern of occurrence of livestock diseases outbreak like rift valley fever. An example is the livestock outbreak which occurred after the *El nino* rains in 1997/98 which caused death of about 200 sheep. In 2016/2017 another outbreak occurred in various parts of the county following prolonged rains. A total of 400 sheep died in the county. The June-August 2018 Rift Valley Fever outbreak in Tana Delta sub-county resulted in death of about 300 sheep, 100 goats and several abortions. The early detection and intervention following enhanced surveillance in the county after a joint alert from the County Director of Veterinary Services and County Director of Medical Services led to no human loss. The livestock market in the Tana Delta sub-county, all slaughter premises and meat outlets were closed causing loss of revenue to farmers & traders amounting to Ksh.52 million in two months. The county government lost about Ksh 4,000,000 in revenue in the two months of the quarantine following the closure of the market.

Based on these factors there is need to make proactive measures to prevent disease outbreak following the heavy rains which are currently experienced in the county, and hence the need and justification for this vaccination sub-project.

1.3 Project Objectives

To control livestock diseases outbreaks through timely vaccination

1.4 Methodology

The methodology used to develop this PMP was based on literature review, interviews and public/stakeholders consultation (screening). Literature review of carried existing policies and legislation of the Government of Kenya and of World Bank Safeguard Policies was carried out in areas of livestock production and protection. Interviews with key informants from relevant stakeholders in livestock production were conducted in order to understand the impacts of the

vaccines on public health and environment. Public consultation meetings took place during development of this PMP. Further processes of developing the PMP included the following stages:

i. Collation of baseline data on livestock and pesticide use in Kenya.

ii. Identification of potential positive and negative economic and environmental and social impacts of vaccine use under KCSAP.

iii. Identification of environmental and social mitigation measures.

1.5 Expected results

i. Increased animal production and productivity from quality livestock products (meat, milk)

ii. Improved household income from livestock sales.

iii. Reduced livestock disease incidences.

iv. Reduced loss of animals due to wet weather induced diseases (RVF, CCPP, CBPP)

v. Increased County Revenue Collection through uninterrupted Livestock market sales.

vi. Sustained revenue flow to the County Government through livestock sale levies and permits.

CHAPTER TWO: REGULATIONS AND POLICIES

There are several policies, laws and regulations that exist to guide Animal health management concerns in Kenya. Some of those relevant to livestock vaccination issues include The Constitution of Kenya 2010, Animal Diseases Act (Revised edition 2012), the Environmental Management Co-ordination Act, and the Public Health Act, World Bank Operational Policy among others.

2.1 The Constitution of Kenya 2010

The Constitution assures Kenyans of the right to "be free from hunger and to have adequate food of acceptable quality", protection for human health and attainment of the highest standard of health. It assures consumers of goods and services of reasonable quality and access to information necessary for them to gain full benefit for the necessary protection of their health, safety and economic interests. Article 42 states that every person has the right to a clean and healthy environment. The constitution provides guidance on steps that may be taken in case any of any infringement on these rights. In addition, the constitution supports systems ensuring safe and healthy environment such as livestock vaccination and monitoring for sustainable environmental management.

2.2 Animal Diseases Act Cap 364 (Revised edition 2012)

This Act provides for measures that may or shall be taken by public bodies and holders of animals for the control of diseases affecting animals e.g. all stock. It provides for the prevention of the introduction of and the prevention and control of, notifiable diseases (b) the isolation, inoculation, removal and slaughter of animals infected by or suspected to be infected by any notifiable disease, or exposed to or likely to be exposed to any such disease: (c) the burial or destruction of carcasses.

2.3 Subsidiary Legislation, 2020 Legal Notice NO: 54 on Covid-19 Restrictions

Since, the subproject will be implemented at a time when the country and the whole world is experiencing Covid-19 pandemic, necessary arrangements and preventive measures will be made to prevent the livestock owners, veterinary staff and other stakeholders from being infected with the virus, guided by the Public Health Act (Covid-19 Restrictions of movement of persons and related measures) while ensuring that the public will continue to receive healthy animal products from the animals. The Department of Veterinary will ensure that:

i. Appropriate social distancing is observed by the staff and livestock owners/keepers
ii. Provision of face masks during vaccination and while travelling to the vaccination sites.
iii. Adequate supply of clean water and detergents for hand washing by all those participating in the vaccination sites.
iv. Provision of sanitizers at all sites.
v. Minimum holding of herds at the vaccination sites will be controlled to reduce on congestion at the vaccination sites.

vi. All those who will be involved in the vaccination exercise will need to be sensitized on COVID-19 and safety measures.
vii. Wearing personal protective clothing/equipment (PPE) will be observed –gumboots, overalls, gloves.
viii. Ensure there will be involvement of local health personnel to oversee safety issues and implementation of COVID-19 guidelines during the exercise
ix. There is need for temperature monitors/ screening of the people as they arrive
x. Those who are unwell will need to be directed to nearby health facilities for further checkup and treatment

2.4 Environmental Management and Coordination (Amendment)Act (2015)

Efforts will be made to ensure that the environment is kept clean free from pollution and contamination by the vaccines, drugs or sharps used during and after vaccination. To that effect observing environmental protection and conservation through safe use and disposal of the wastes (empties & sharps) will be ensured. Containers with right labelling / standard colors will be provided, and that hazardous wastes will be disposed at designated disposal sites

2.5 Kenya Vision 2030

The Kenya Vision 2030 outlines several approaches to improve livestock productivity. It recognizes animal health as a key input. It proposes establishment strategically-located Disease Free Zones to increase livestock productivity and quality; unifying the efforts of different ministries and other stakeholders for coordinated development of the livestock sector with special emphasis on ASALs such as Tana River county. Preventive measure against livestock diseases are among the strategies that have been used safely, effectively and successively by the sector over years.

2.6 The Veterinary Policy

The Policy provides an enabling environment for safeguarding animal life, health and welfare as well as animal propagation and production for food security and economic development. It seeks to ensure that Kenyans benefit from proximate and quality health by guaranteeing animal health, welfare and production services. The Policy is provided for in the Fourth Schedule of the Constitution of Kenya. It aligns developments in the animal resource industry to the Constitution as well as the Kenya Vision 2030 and the international animal health laws, treaties, agreements and conventions ratified by Kenya. The overarching treaty is the World Trade Organization agreement particularly the agreement on the Application of Sanitary and Phytosanitary measures which Kenya ratified on 23rd December 1994 and came into effect on 1st January 1995

2.7 Environment Policy, 2014

The aim of the Environment Policy (Sessional Paper No.10 of 2014) is to ensure that environmental concerns are part of the national planning and management processes; and that guidelines are provided for environmentally sound development. The policy has seven broad goals under which guiding principles are mainstreamed to achieve conservation and management of the natural resources (fauna and flora).

2.8 The National Policy on Gender and Development (2000)

The policy recognizes that it is the right of men, women, boys and girls to participate in and benefit from development and other initiatives for sustainable development. All the gender groups within the pastoral set ups in Tana River County have been actively involved in the

identification and development of the proposed project. Besides, all the gender groups will have equal opportunities to actively participate in the project implementation process from publicity and community mobilization barazas, sensitizations, monitoring thee vaccination process and even evaluation of the project.
Though the ownership of the large stock livestock species; cattle, camel, sheep and goats is a preserve of men, women have a key role in the utilization of livestock products. Therefore, women will also have a noble opportunity in ensuring that all the animals are mobilized and taken to the vaccination sites. The youth full of energy and activism, will be very hardy in mobilizing and controlling the livestock herds during the vaccination exercise.
Successful control of livestock diseases will result in sustained and improved production of good quality animal products; meat & milk hence overall good human health and consistent farm incomes translating to a productive and resilient local economy.

2.9 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 employees engaged in this exercise will be provided with PPEs so as to ensure their safety and health. Further, more the animals will be vaccinated in designated crushes so that they do not cause injuries or harm the employees. There will be a monitoring team that will closely supervise compliance with these regulations.

2.10 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 of 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 vaccination sub-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 (KCSAP Tana River) 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. Further, more all waste will be categorized and properly labeled. 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 at Tana River County Referral Hospital.

2.11 World Bank Operational policies

The following World Bank's Operational policies are likely to be triggered during the implementation of the vaccination sub-project.

2.12 Pest Management (OP 4.09)

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. The project has complied by preparing a Pest Management Plan (IPMP).

2.13 Operational Policy (OP) 4.01: Environmental Assessment, 2001

This policy helps ensure the environmental and social soundness and sustainability of investment projects so as to ensure it doesn't negatively affect the environment. It also supports integration of environmental and social aspects of projects in the decision-making process.

The implementation of the vaccination project also triggers operational policy OP 4.01 which dictates that all WB funded projects are 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 IPMP. 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.

2.14 The World Bank Operational Policy on Indigenous Peoples (OP/BP 4.10).

The operational policy requirement that Bank-financed projects are designed not only to avoid adverse impacts but equally important to recognize that "the distinct identities and cultures of VMGs remained inextricably linked to the lands they inhabited and the natural resources they depended upon to survive". The policy provides processing requirements for VMGs that include: (i) screening, (ii) social assessment, in consultations with communities involved, (iii) preparation of Vulnerable and Marginalized Groups Plans (VMGPs) or Vulnerable and Marginalized Groups Framework (VMGF) and, (iv) disclosure. It also requires the borrower to seek broad community support of VMGs through a process of free, prior and informed consultation (FPIC) before deciding to develop any project that targets or affects VMGs. Bank-financed sub-projects are also designed to ensure that the indigenous peoples receive social and economic benefits that are culturally appropriate and gender and inter-generationally inclusive. The main ethnic group in the area is the Somalis nationally categorized as IPs. However the proposed sub project is intended to improve their livelihoods through provision of vaccination of livestock against diseases thus supporting and improving their source of livelihoods, which is livestock.

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 are 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 protecting their main source of livelihoods and increase 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, especially from the employment opportunities presented by the project, through construction of crushes and other support activities. The project is also anticipated to benefit widows and orphans in the project area, especially female headed families.

CHAPTER THREE: VACCINATION PROCESS

3.1 Pre-vaccination sero-surveillance

Pre-vaccination sero-surveillance will be conducted to establish antibody titre levels before vaccinations as a baseline to gauge success of the earmarked vaccination. PPR rapid test kits will be used during the exercise. Serum samples from animals will be collected for further processing at Mariakani and/or Kabete Laboratories.

3.2 Mobilization and targeting

Community mobilization for vaccination will take place in all three Sub Counties: Tana River, Tana North and Tana Delta. All the fifteen (15) wards from these sub counties will be targeted. The targeted beneficiaries will include minority and vulnerable groups, widows, youth and the elderly. The local leadership will help in the identification of the vulnerable and marginalized group (VMG) to ensure information on the exercise reaches them and their involvement throughout the vaccination exercise is achieved.

The Mobilization exercise will be undertaken by the Veterinary Department staff in collaboration with local community leaders and community disease reporters (CDR) as indicated in Table 3.1 below

Table 3 Mobilization Means

CHANNEL OF COMMUNICATION	MEDIUM	RESPOSIBLE PERSON
Telephone	Phone	Local administrator, CDVS, KCSAP
Baraza	Word of mouth	Local administrator, CDVS, KCSAP,CDR
Local FM station	Radio	CDVS/KCSAP
Fliers and posters	Paper	CDVS/KCSAP

The team will visit each and every sub county and meet with the Sub County Administrators, Ward administrators, chiefs, assistant chiefs and targeted pastoralist so as to create awareness. During these meetings, the Sub-county public health officer (SCPHO) will ensure strict adherence to ministry of health guideline on containment of covid-19. This includes; wearing of face mask, keeping of 2-meter social distance and regular hand washing or sanitization.

During these meetings, the most vulnerable and marginalized group (VMGs) 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.

During mobilization, the team will pass the following information

I. The targeted species of animals
II. The date and time for carrying out Vaccination activities for each of the target villages

III. The type of vaccines, drugs to be used during the exercise

IV. Why it's important to vaccinate against the specified diseases

V. Conflict resolution/ grievance redress mechanism and steps to be followed in cases of complaints

VI. Risk associated such as injuries, accidents, pollutions as well as vaccine reactions

Target Sub-Counties and Wards in Tana River County

Table 4 Tana Delta Sub County coverage and the diseases targeted

S/no	Site/village	Ward
1	Geresa	Garsen West
2	Assa	Garsen West
3	Onjila	Garsen West
4	Dasse	Garsen West
5	Hidi	Garsen West
6	Kone	Garsen West
7	Tarasate	Garsen West
8	Mikameni	Garsen North
9	Gambole	Garsen North
10	Ngumu	Garsen North
11	Chamadho	Garsen North
12	Mnazini	Garsen North
13	Mwanja	Kipini West
14	Samija	Kipini West
15	Odole	Kipini West
16	Kokomo	Kipini West
17	Nduru	Kipini West
18	Algamsa	Kipini West
19	Kipao	Garsen Central
20	Ongonyo	Garsen Central

Table 5 Tana River Sub County coverage and the diseases targeted

S/no.	Site/ village	Ward.
1.	Sumai	Wayu
2.	Malkadende	Wayu
3.	Biresa	Wayu
4.	Dabasimiti/Golecha	Wayu
5.	Daba	Wayu
6.	Gofisa	Wayu
7.	BultoAbarufa	Wayu
8.	Bultomulitu	Wayu
9.	Matagala	Wayu
10.	Wayuboro	Wayu

11.	Wayuduka/Boshthithu/Onguba	Wayu
12.	Bururi	Wayu
13.	Koticha Mlima	Wayu
14.	Koticha Odhowan	Wayu
15.	Chifiri	Wayu
16.	Hakoka	Wayu
17.	Gururi	Wayu
18.	Haroresa	Mikinduni
19.	Hara	Kinakomba
20.	Bula Wenje	Kinakomba

Table 6 Tana North Sub County coverage and the diseases targeted

S/no	SITES /Village	Wards
1	Eltutu	Hirimani
2	Subukie	Hirimani
3	Titila Mka	Hirimani
4	Wale Sorea	Hirimani
5	Wadesa	Chewele
6	Gasura	Chewele
7	Bilbil	Chewele
8	Matagala	Chewele
9	Nanighi	Chewele
10	Charidende	Chewele
11	Dukanotu	Chewele
12	Hamares	Madogo
13	Habakiki	Madogo
14	Tulla	Bangale
15	Bultobanta	Bangale
16	Boka	Bangale
17	Kamaguru	Bangale
18	Buwa	Madogo
19	Konoramadha	Sala
20	Malkamasa	Sala

During these meetings, the Sub-county public health officer (SCPHO) will ensure strict adherence to ministry of health guideline on containment of covid-19. This includes; wearing of face mask, keeping of 2 meter social distance and regular hand washing or sanitization.

During these meetings, the most vulnerable and marginalized group (VMGs) 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.

During mobilization, the team will pass the following information

VII. The targeted species of animal

VIII. The date and time for carrying out Vaccination activities for each of the target villages

IX. The type of vaccines, drugs to be used during the exercise

X. Why it's important to vaccinate against the specified diseases

XI. Conflict resolution/ grievance redress mechanism and steps to be followed in cases of complains

XII. Risk associated such as injuries, accidents, pollutions as well as vaccine reactions

3.3 Stakeholder mobilization

Stakeholder meetings will be held aimed at ensuring their collective participation in the vaccination exercise. Meetings will be held under strict adherence to Covid-19 containment measures. The guidelines to minimize spread of COVID-19 as provided by the Public Health regulations will be implemented during such meetings including maintaining social distancing, use of face masks and observation of personal hygiene (hand washing and sanitizing). Representatives of the following sectors/ departments will be engaged: County Technical Advisory Committee, County Project Service Unit (CPSU) Administration (County and National governments), Community representatives (male and female), Veterinary Department, Public Health department.

Areas of discussion during planning meetings will focus on minimizing COVID-19 spread and ensuring a clean environment throughout the vaccination exercise right from vaccine collection and transportation, community mobilization, pre-vaccination surveillance transportation to the field, vaccination exercise, waste collection, COVID-19 Surveillance and supervision.

3.4 Role of Stakeholders in the Vaccination Process

i. CPCU- Procurement of Vaccines, Avail funds for vaccination, facilitation of the field teams and supervision of the vaccination process
ii. KEVEVAPI-Supply of quality vaccines and right quantities
iii. CDVS-Requisition of vaccines and associated equipment, transport, logistics
iv. Stores Officer-Stores and Cold chain management, timely and adequate supplies
v. NEMA-Waste management supervision
vi. Public Health-Monitoring of COVID 19 compliance and implementation of COVID 19 control management
vii. Community-Avail livestock for vaccination, maintaining the crushes, restraining the animals
viii. Vaccination teams- Administration of vaccine, site cold chain management, site waste management, daily reporting

3.5 Collaborators and Stakeholders engagement

During the implementation of the project, a multidisciplinary & participatory approach will be used. Key stakeholders will participate during identification, planning, implementation, monitoring and evaluation (see Table 4.1). As part of ensuring sustainability of the project, the involvement of technical staff and the community (as a social capital) will ensure ownership and sustainability in adoption of the control of livestock diseases, safe use and disposal of drugs and drug products. be mobilized in collaboration with the department of

veterinary and the area chiefs. The chiefs will work closely with the CDR to enable accurate information is delivered to the community.

Table 7 List of Stakeholders and their Roles

No	Collaborator/Stakeholder	Area of collaboration /Role
1.	Local administrators/chiefs	Security and Community Mobilization
2.	Ward administrators	Community mobilization and awareness
3.	Village elders	Community mobilization
4.	Kenya Climate Smart Agriculture Project (KCSAP)-CPCU	Resources mobilization- Procurement of Vaccines
5.	County Project Steering Group/Committee (CPSC & CTAC)	Supervision
6.	Beneficiary Community	**Construction of makeshift crushes and availing of the animals for vaccination.**

3.6 Procurement of Vaccines and equipment

Procurement of vaccines & equipment will be the responsibility of the Veterinary department, who will initiate procurement process through a request to CPCU. Some of the accessories/equipment for the vaccination campaigns will be provided by the Department of Veterinary as part of their contribution.

3.7 Vaccines collection procedure

Two officers (Veterinary officer, County Project Procurement Officer-KCSAP) will collect the vaccines at Kenya Veterinary Vaccines Production Institute (KEVEVAPI) cold stores in Embakasi, Nairobi. 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 provided with sanitizers for use during transportation. During collection the officers will verify the status of vaccine as follows: Packaging, labeling, expiry dates among other vaccine attributes. See Annex 7.3.

3.8 Drugs and Vaccines to be used in the Livestock Vaccination

The following recommended vaccines and drugs will be used during the vaccination exercise for control of different diseases and vectors (Table 3.6). The equipment to be used are provided in Table 3.7

Table 8 List of Vaccines and Drugs to be used in the Livestock Vaccination Project

s/no.	Item	Quantity
1.	Caprivax(CCPP vaccine)	250,000 doses.
2.	PPR	400,000 doses
4	Contavax (CBPP)	200,000 doses
5.	RVF Vaccine	300,000 doses
6.	BQ	150,000 doses
7.	Flumethrin 1% (bayticol)	500 ltrs
8.	Oxytetracycline LA 20%(100 mls)	200 pcs/bottles
3.	Albendazole 10% (albafas)	1000 ltrs.
9.	Multi vitamin inj (100mls)	200 bottles
10.	Penstrep injection 100mls	200 pieces

Table 9 Table of Vaccination Equipment and Consumables required

Item	Quantity
Automatic Syringes 50 ml (German)	30
Barrels 50 ml (German)	15
hypodermic needles 14 x1/2 gauge (German) dozen	10
hypodermic needles 16 x1/2 gauge (German) dozen	10
Spare/repair kits	15
Aerosol spray can	36
Antihistamine inj 100ml bottle	10
Biohazard bags(Dozen)	15
Biohazards bins	5
Sharp containers	10
Goggles	25
Gum boots	25
Overall (Pieces)	25
Broad brimmed hat	25
Soft leather hand gloves	25
Dust/Face masks packets	25
Face Shields	25
First Aid Kits	5
Masking Tape	5

Markers(dozen)	5
Medium sized cool box	15
Paper Towels – Dozen	10
Latex Disposable Gloves pkt (100 pcs)	10
Disinfectant (litres) – jik	20
Sampling bottles (dozen)	10
Vacutainer tubes – EDTA (100 pcs pkt)	30
Vacutainer tubes –PLAIN (100 pcs Pkt)	30
Vacutainer (Eclipse safety needles) 48 pcs pkt	125
Cryovials – 100 pcs pkt 1.8ml	60
Surgical Blades pkts	10
Surgical Spirit (Ltr)	10
Gloves – arm length (100 pcs pkt)	5
Cotton Wool roll	10
Pipettes/droppers (100 pcs pkts)	5
Alcohol swabs – pkt	10
Temperature monitors (Infra-red)	6
Alcohol-based sanitizers (Lts)	20
Hand washing equipment	7
Liquid soap (Lts)	20
Soap dispenser (Pcs)	7

3.9 Vaccine Collection and Cold Chain Management

Once the vaccines are paid for and secured, CDVS and the County project procurement assistant from CPCU will travel to Nairobi and meet KEVEVAPI or its recognized agent's sales person to verify and collect the vaccines. The vaccines will then be transported to Tana River via airplane. During the collection, the officers will verify the status of the vaccines including; packaging, labeling, expiry dates among other vaccines attributes. Vaccine collection sheet will be filled and photographs taken for purpose of documenting the process. Temperature monitor will be activated on collection and once inside the cool boxes.

The CCPP vaccine will be stored or transported in a refrigerator with temperatures of +4°C. Under this condition the shelf life of the vaccine is one year. As for the SGP and PPR vaccines, the recommended storage temperature is at -8C (freezer) so as to have a shelf life of 2 years. However, if stored at temperatures of between +2°C and +8°C the shelf life reduces to one month. Likewise, the Black quarter and Anthrax vaccine, the recommended storage temperatures is between +2°C and +8°C. However, it should not be frozen and be kept away

from light. All this indication will be captured in the material safety data sheets that are accompanying the vaccines and therefore the team spearheaded by the experienced veterinary Director will have a closer look and ensure the right temperatures are kept for each vaccine during transportation and storage of the vaccines.

On arrival, the temperature monitors will be checked for alteration ensuring that no disruption occurred on transit. As the vaccines are offloaded and packed into Veterinary cold storage, the store's manager and Procurement Officer will verify the condition and quantities of the vaccines delivered and subsequently enter them into the store's vaccine ledger (S11, S12, and S13). The best cold chain management Practices will be adhered to during storage and delivery to the field.

Temperature monitors will be used on cooler boxes and freezers to ensure that recommended temperatures are maintained during transportation and storage of the vaccines.

3.10 Actual Vaccination Plan

Briefing for vaccination campaign

Before rolling out the vaccination exercise, the CPCU will hold a one (1) day intensive activity to brief the vaccination teams participating on environmental and social safeguards issues to be adhered to during the vaccination exercise. The briefing will also entail COVID-19 infection prevention measures, documentations, vaccination targets, and daily records among others.

3.11 Vaccination Teams

There will be three teams carrying out vaccination for 60 days (20 days per team) in the County. Teams will be covering Tana North, Tana River & Tana Delta sub-counties. Each team will comprise of 1 Veterinary Officer, 2 Livestock Health Officers/ Animal Health Officers, 2 animal health Assistant, 1 driver, 1 Recorder, 1 Community Disease Reporters (CDRs), 1 veterinary intern.

At the field, the team members will perform different roles such as clinical case managements/ treatments, administration of vaccines, deworming, waste collection, recording of activity, restraining of animal, animal health extension messages and enforcement of COVID-19 infection prevention measures respectively.

CDVS will ensure that the vaccinators are registered with Kenya Veterinary Board (KVB) and are familiar with the dynamics of the vaccines. The team will undergo a sensitization on Environmental and Social Safeguards and the World Bank Operational Policies by the county environmental and social safeguard compliance officer from KCSAP Tana River and the CDVS. 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. The team members will also be required to wear protective gear (Overalls, gumboot, mask and gloves) all the time during field activity and adhere to MoH recommended COVID-19 infection prevention measures.

All the team leaders will be provided with checklist of items to be collected on behalf of the team members.

Note:

3.12 Vaccination sites
Criteria of selecting Vaccination sites

The following criteria will be used to select the site:

i. Mobilization report
ii. Population of animals in targeted area
iii. Presence of holding area with crush
iv. Animal movement reports
v. Stock routes
vi. Safety of the team and the animals

3.13 COVID-19 Surveillance

All the farmers and the veterinary staff who will be taking part during the vaccination campaign shall be expected to observe the following measures;

a) Encourage all persons within the vaccination areas to cover their cough or sneeze with a tissue. Throw all tissues in the trash after use.

b) Maintain good hand hygiene by washing with running water and soap, or using an alcohol-based hand sanitizer, especially after coughing or sneezing.

c) Avoid touching eyes, nose and mouth.

d) Provide the means for appropriate hand cleansing readily available within the vaccination area.

e) Use ideal means for hand cleansing including running water and soap. Paper towels and waste baskets should be made available.

f) Frequently wash hands with soap and water, or use a hand sanitizer if hand washing with soap and water is not possible and hand sanitizers are available.

g) Follow standard infection prevention precautions. These include training staff in the control of infectious diseases, providing access to personal protective equipment and apparatus, and encouraging proper hand-washing. Items that are often in contact with

respiratory droplets and hands (e.g., doorknobs, faucets, etc.,) should be cleaned and disinfected regularly.

h) Clean all common areas within the vaccination areas routinely and immediately, when visibly soiled, with the cleaning agents normally used in these areas.

i) Educational materials and information should be provided to farmers in a way that can be understood by non-English and non-Kiswahili speakers.

3.14 Disposal and waste management

Waste that are expected from the exercise include; Syringes and needles, drugs and vaccines and their containers. NEMA will oversee waste collection and disposal at the burning chambers in the County. Waste will be segregated and put in well labeled Biohazard bags and sharps containers which will be provided to the field teams and a schedule for collection given to them. The waste will then be deposited at the County designated burning chambers in the Sub-counties and later be disposed in accordance with waste management best practices. Officers who will form the waste Disposal team are listed in Table 3.8.

Table 10 Waste Disposal Team

RESPONSIBLE OFFICER	DEPARTMENT	ROLE
CDVS	Veterinary	Ensure segregation of various wastes and put in well-labeled Biohazard bags
County Director- NEMA	NEMA	Provide technical support and ensure environmental considerations are adhered to during the exercise,
Public Health Officer	Health	oversee overall waste collection and disposal at the licensed incinerator at Hola County Hospital
CESSCO	KCSAP	Environmental and social safeguards support as per the World bank guidelines
Driver		Safe transportation of wastes to disposal sites

3.15 Grievance Redress Mechanism

Grievances will be handled at three levels; 1. The community level, 2. County level and

3. The National level. The community level GRM committee will comprise of five members from each of the vaccination areas. The committee shall be headed by a chairperson and will comprise of PLWD, indigenous people representative youth, elderly and a female from female headed households. The area chief will work with the committee and provide all the necessary support needed by the committee in resolving the grievances/complaints by the locals. The committee members will be proposed and selected by the locals from among themselves. The committee will receive and record complains in the complaints register (Log register)**.** Depending on the nature and weight of the committee will resolve the complaints and give feedback/resolution to the complainant. Community will also be informed about the establishment of county grievances redress committee and their contact details revealed during consultation.

In case the committee fails to reach a resolution on the complaint, the committee will escalate to the county level GRM committee. The county level GRM will be chaired the County Project Coordinator (CPC).

Complaints/grievances received from communities during and after vaccination campaign will be channeled to the CDVS and County Environment and Social Safeguards Compliance Officer (CESSCO) for escalation to the County Grievance Redress committee(Table 3.9) for redress. A Grievance log register for the sub project will be opened at the county level to launch all complaints.

Table 11 GRM Team

	MEMBER	**RESPONSIBILITY**
1	Dr Paul Mwamburi	Team leader at the county level where all grievances by the community will be lodged; he will be the initiator of the grievance resolution process.
2	Alfonce Munguti- M&E	Tracking and monitoring all issues raised
3	George Wasonga- CESSCO	Guide in environmental impacts and social risks posed by the project and mitigations provided for as per law or in the project documents
4	Edward Menza	To ensure that all environmental impacts of the project have been mitigated.
5	Public Health Officer	Waste management and disposal issues
6	Chief Officer Livestock	Department leader
7	CEC-Agriculture	County Government representation in the project area

3.16 Monitoring

Monitoring will be a continuous exercise throughout the implementation process. Two supervision teams will carry out the supervision of Vaccination exercise in the county. The

team will oversee implementation at community level by visiting Vaccination teams and meeting the target community members.

It will be participatory by CTAC representatives, PMC, M&E, CPCU & CPSC representatives and two drivers **(**Table 3.10)**.** The two teams will use same itinerary and make field visit few days after the start of the vaccination activity. During the supervision, the team will verify through observation; composition of the team, the actual activity done at the field, the adherence of the team to IPMP and the scope of activities as per the activity plan. The supervision team will also take note of the turnouts, the community views on the intervention, challenges faced by teams and progress made in terms of expected coverage in relation to the target. The team will also address technical, Environmental, social and welfare issues encountered by the teams during the exercise.

Table 12 Supervision Team Members

Officers	**Designation**	**Roles**
Mwanajuma Hiribae	CEC (CPSC)	Oversight
Golo Kanchoro	CCO (CPSC)	Oversight
Dr. Paul Mwamburi	CDVS (CTAC)	Technical Team Leader
Samuel Baya	CDA (CTAC)	Oversight
Nzioka Wambua	CDLP (CTAC)	Oversight
Edward Menza	NEMA (CTAC)	Oversight
Peter Munyoki	CPC (CPCU)	Oversight
Alphonce Munguti	M&E (CPCU)	Oversight
George Ogunde	CESSCO (CPCU)	Oversight
Patricia Njeri	DRIVER- KCSAP	Transport

3.1 Reporting

During the preparation and actual vaccination exercise, the following reports will be generated as shown in the Table 3.11

Table 13 Reports to be generated

Report	**Frequency**	**Responsible**

1. Vaccine procurement and collection report	Once	CDVS/CPC/PROCUREMENT OFFICER
2. Vaccination Publicity report	Once	SCVO
3. Cold chain Management	Once	CDVS/ STORE MAN
4. Daily vaccination reporting	Daily	SCVO
5. Vaccination Monitoring report	Once	CDVS/M&E KCSAP
6. Safeguards and Vaccination waste Disposal report	Once	CESSCO/CDVS/ NEMA
8. Overall vaccination report	Once	CDVS
9. Knowledge management	Once	M & E
10. COVID-19 containment report	Once	PHO

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

i. List of participants during the consultative meetings (Annex 7.6)
ii. Copy of livestock vaccination manifest detailing the sub county, ward, site, number of animals vaccinated and the beneficiary (Annex 7.7)
iii. Photographs during the exercise

CHAPTER FOUR: POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

This sub-project is in category B and has potential to cause harm both to the environment and the social aspect of human life. It was subjected to screening so as to identify potential adverse

impacts and propose necessary mitigation measures. Below are the potential positive and negative environmental and social impacts of the vaccination.

4.1 Positive impacts of vaccination

The positive impacts of the proposed vaccination sub-project include;

i. **Building resilience:** Vaccination improves animal health hence improved productivity. This will lead to increased availability and accessibility of livestock products; milk and meat, which will enhance household nutrition and increase household income through sale of livestock and livestock products e.g. meat and milk.
ii. **Facilitate trade:** Vaccination will ensure access and stability of markets. Because occurrence of notifiable and/or transboundary diseases lead to imposition of quarantine which disrupts livestock trade. The disruption, leads to reduced income as farmers cannot access market for their livestock and livestock products.
iii. **Awareness creation on disease control:** Vaccination exercise provides an opportunity for livestock owners to get sensitized on the timing and need for vaccinations; they will get to know vaccine preventable diseases and its benefit on livelihood asset protection. Also leads to reduced cost of production as farmers will not spend money on disease treatment that is a threat in absence of vaccination. This will lead to increased investment in Livestock will plough back the profit accrued leading to increased livestock productivity.
iv. **Sensitization on COVID-19:** the pastoral community located in remote villages will get the opportunity to hear and sensitized about the COVID-19 infection prevention measures
v. **Delivery of Veterinary service:** The exercise will help the County Veterinary department in achieving one of its core function which is disease prevention and control

4.2 Potential negative impacts of vaccination

In line with World Bank Environmental and Social Safeguard Policies, an agricultural development project which uses pesticides in a wide scale such as this triggers World Bank's Operational Policy OP 4.09 (Pest Management Plan- IPMP). The key risks and impact areas in the county were identified in procurement, on transit to county, in the county cold stores, on transit to vaccination sites, during actual vaccination, post vaccination and disposal. IPMP has been developed for implementation to ensure the identified negative impacts are mitigated.

4.3 Negative Environmental Impacts

a. Solid waste generation around the vaccination sites

Vaccination teams usually throws or leave all waste in the field thereby creating unsightly scenes. Livestock owners and surrounding household usually pick the empty containers and reuse them oblivious of the dangers they pose. The disposal team will ensure that all wastes are collected at the crush sites, sorted out, grouped and effectively disposed according to Environmental Management and Coordination-waste management regulations 2006.

All non -hazardous waste will be disposed-off in the nearest waste management sites 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 NEMA licensed transporter and incinerated in the incinerator at Tana River County Referral Hospital.

b. Soil contamination

Waste materials left on the ground by the vaccination team will also contaminate the soil through wash-off or run-off into soil. This may affect the soil micro-organisms and soil PH. To avoid such scenario, the vaccination will be undertaken by qualified personnel to ensure proper delivery of the vaccines to the animals in order to ensure there is no spillage on the ground.

c. Surface and Groundwater Contamination

Rainwater surface runoff may wash away the pesticides residues into streams, rivers, and other surface- water bodies. 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, thereby effectively preventing spillage on the surface and ground water. Location of the crushes will be strategically placed to avoid marshy and those areas with stagnant water or run-offs.

d. 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, vapor may travel beyond the project site. 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.

Pollution also arises from movement of livestock on bare soils especially when they are many. It also arises when vaccination is not done in the designated crushes more so during handling.

This will be mitigated by allowing small sizes of herds at point of vaccination. Vaccination of animal will also be done in well-established crushes. Broken/ worn out crashes will be repaired and new ones constructed before the vaccination exercise.

Vaccines to be used will not lead to contamination of air since they will be delivered by way of sub-cutaneous injection.

e. Harm to Non-target Species

The environmental impact of pesticides consists of the effects of pesticides on non-target species. 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/Goats/Sheep) hence no harm to non-target species.

4.4 Social Risks and Impacts

a. 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.

Mitigation measures:

- ✓ Proper publicity and mobilization of the community to agree on dates and sites of vaccination will be undertaken to ensure maximum participation.

b. Social and/or professional misconduct by the vaccination team, poor handling of grievances/complaints arising out of the vaccination are some of the social risks foreseen with this sub project.

Mitigation measures:

- ✓ County grievances redress committee will be set up to handle complaints/ grievances received from communities before, during and after vaccination campaign.

c. Failure by farmers to bring livestock, failure of some marginalized communities to avail animals for the vaccination, cultural factors that may hinder this vaccination,

Mitigation measures:

- ✓ Proper publicity and mobilization of the community to agree on dates and sites of vaccination will be undertaken. This will ensure that the target farmers avail their livestock for vaccination. A team of nine members headed by CECM is already in place as county grievances redress committee to handle complaints/ grievances received from communities before, during and after vaccination campaign. VMGs will also be identified and purposively targeted in the exercise, thereby limiting chances of complaints by this group.

d. Beneficiary households will be deprived of income from sale of livestock products (meat and milk during the vaccination/ treatment period).

Mitigation measures:

This will be a short term effect that will be overcome through sensitization of the beneficiaries to have an alternative source of income during the vaccination/treatment period

e. Health and Safety Impacts: Pesticides can enter the body through inhalation of aerosols, accidental self-jabbing, dust and vapor 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 through 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, veterinary officers, 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.

Mitigation measures:

To reduce health and safety impacts, PPEs will be used by all the vaccinators, therefore minimizing cases of injury and exposure to the vaccines. The supervisors will ensure proper sensitization of the community on potential exposure risk and mitigation measures, as well as ensure that children are kept away from vaccination crush sites.

f. Consumption of livestock products such as meat and milk from the treated animals before the elapse of the chemical residual period may cause human health problems both

within and outside the project area as the products may as well be sold by the beneficiaries.

Mitigation measures:

The vaccination team lead will create awareness on drug residues in animal products and the side effect of such during the publicity barazas. They will inform the beneficiaries on when it will be safe to consume animal products after the vaccination/ treatment depending on the type of product.

g. There are also chances of injury of the vaccination team by the animals.

Mitigation measures:

This will be mitigated through restraining the animals in crushes; repairing of worn out crushes and construction of new ones. In addition, first aid kits will be provided and the PHOs will help with administering first aid in case of injury and advising on required healthcare for the injured.

h. COVID-19 and livestock vaccinations:

- 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.

Mitigation measures:

i. Vaccination teams and the community beneficiaries will observe all the guidelines provided by ministry of health, WHO and World Bank including:

ii. 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.

iii. Use of personal protective equipment: All participants at the site will be required to wear face masks. Vaccinators will in addition wear gloves while handling animals and vaccines. They will also put on protective clothing (overalls, caps and gumboots).

iv. Hand washing with soap and water: the project will provide potable water jerry cans with taps for handing washing at every vaccination site. Every person will be required to wash hands immediately they arrive to the vaccination site. In addition, alcohol based hand sanitizers will be provided for the vaccination teams.

v. Keeping social distance: social distancing will be implemented and no large crowds of people will be allowed. Community will be required to organize themselves in a manner to prevent crowding and allow procedural driving of animals to and from the vaccination sites. More crush sites will be established to prevent livestock keepers from crowding in one location. More time will be allowed to ensure all animals are vaccinated in established crush sites.

vi. Making sure the vaccinators and the beneficiaries follow good respiratory hygiene. This means covering mouth and nose with a bent elbow or tissue when coughing or sneezing, and then disposes of the used tissue in the bins immediately.

vii. Teams will be sensitized on the need to maintain social distancing during the activity to reduce risk of Covid 19 infections.

i. Sexual Exploitation and Abuse (SEA): This impact refers to sexual exploitation and abuse committed by Project staff against communities and represents a risk at all stages of the Project, especially when employees and community members are not clear about prohibitions against SEA in the Project.

Mitigation Measures

(i) Ensuring that all vaccinators are KVB registered and are familiar with Veterinary professional Codes of ethics to uphold professional conducts and avoid any form of behavior that can disrepute professionalism

(ii) Establishment of mechanisms of preventing occurrence of SEA such as putting in place workers' code of conduct which is in line with the existing laws and regulations as well as community rules and protocols in dealing with the vaccinators.

(iii) Continuous sensitization of the workers/staff on the need to adhere to the rules of the code of conducts and repercussions of failure to adhere to the CoC

(iv) Put in place reporting and response centre for complainants and victims

(v) Ensure timely investigation of such complaints and conclusive follow-up on such cases

(vi) Establishment of properly functioning GRM centre for receiving, recording and ultimate follow-up and amicable resolution of community grievances

(vii) Engage and sensitize women and girls on channels of reporting and the importance of timely reporting of SEA cases

j. Gender-based Violence (GBV) at the community level: This impact refers to gender-

based violence that women and girls may experience as a result of Project implementation. This includes, for example, an increase in intimate partner violence (IPV) when compensation schemes that share funds equally among husband and wife at the household level do not provide adequate sensitization and safety measures to reduce potential for increased tensions due to females receiving funds. This also refers to other GBV-related risks incurred as a result of water and sanitation projects that do not adequately consult women and adolescent girls in the community about safety and security issues related to the delivery of water and sanitation services.

Mitigation measures

(i) Develop and implement provisions that ensure that gender-based violence at the community level is not triggered by the Project, including:

(ii) effective and on-going community engagement and consultation, particularly with women and girls;

(iii) Review of specific project components that are known to heighten GBV risk at the community level, e.g. compensation schemes; employment schemes for women; delivery of water supplies; etc.

(iv) Specific plan for mitigating these known risks, e.g. sensitization around gender-equitable approaches to compensation and employment; water services; etc.

(v) Ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation.

k. Consumption of animals under chemical pest control could cause health hazards to humans and animals within and around the project site. Livestock owners will be sensitized on withdrawal periods to ensure the health of the locals is safeguarded.

l. Certain kinds of chemical intoxication especially after drinking pesticide-contaminated water are a medium to high likelihood. This is a crucial potential impact considering that most of the locals get drinking water from surface and groundwater sources – safe handling and disposal of all waste during the vaccination will be observed

m. Skin, eye, and nose irritation – wearing of PPE during the exercise will be adhered to by the vaccination teams

n. Injuries from vaccination tools: The exercise has the potential to cause accidents and injuries to vaccinators and animal handlers. Injuries can also happen to the animals themselves especially during handling. Accidental self- jabbing can also occur. These

impacts will be mitigated by providing PPEs to all who are undertaking the exercise so as to avoid accidental self-jabbing.

o. Animal attacks: Vaccination exercise is carried out in villages and bushes where unexpected attack can occur from both wild and domestic animals with aggressive behaviors. This can potentially result in serious injuries to the team members. Animals will also be vaccinated in crushes so as to avoid/minimize injuries during handling.

p. Accidental bites: Camping in villages has the potential to expose the team members to snake and scorpions' bites. Teams are not allowed to camp in villages and will instead travel to nearby towns to avoid wild animal attacks and snake bites.

q. Abortions or sickness: some live vaccines can induce stress leading to abortions and or transient fevers that may incapacitate the animal

r. Local community members can also consume or even sell the milk and meat of the treated animals before the waiting period elapses thus endangering their lives and that of the consumers. The animal owners will be sensitized on the need to observe withdrawals after animal treatment and on the potential effects of vaccine on pregnant and weak animal.

CHAPTER FIVE: PEST MANAGEMENT PLAN(PMP)

Pest Management Plan is a tool used to ensure undue or reasonably avoidable adverse impacts of the project implementation are prevented and that the positive benefits of the project are enhanced. During the implementation of the livestock vaccination project at various stages various mechanisms and activities, safeguards and controls will be put in place to ensure that the beneficiaries both the animals and humans receives the potentially maximum utility from the planned vaccination exercise

Table 14 Pest Management Plan

	Impact issue/Risk	Mitigation	Required resources/ materials	Monitorable Indicators	Cost	Responsible person
A.	**PRE VACCINATION MOBILIZATION & CONSULTATIONS WITH COMMUNITY MEMBERS**					
1	Spread of covid-19 during mobilization and consultation with community members	1. Provide double-cab vehicles carrying only two staff to ensure social distance, 2. Surfaces (e.g. desks and tables) and objects (e.g. telephones, keyboards) to be wiped with disinfectant regularly 3. Maintain a water dispenser with soap or alcohol sanitizer for cleaning hands regularly; 4. Maintain at least 1 metre (3 feet) distance from others by establishing indicative	1) Face mask 2) Gloves 3) Sanitizer 4) Posters 5) Hand washing containers 6) Soap 7) Disinfectant 8) Infra-red temperature monitors	-No of Double Cab vehicles available, - No of face masks, soap and sanitizers procured, -Amount of clean running water availed, -No of people whose temperature is checked -No. of local FM radio talks on public mobilization for vaccination exercise and sensitization --No. of local FM radio talks on public sensitization on COVID-19	The cost has been provided for in the Sub-Project Budget	- CDVS - CESSCO - PHO

		signs for the benefit of the public and officers undertaking mobilization 5. Use local FM radios to prevent crowding during mobilization 6. Display warning posters that warn or give guidance on COVID-19 7. Avoiding touching of eyes, nose and mouth and promoting the use of gloves. 8. Ensure the public and the officers wear facemasks at all times 9. Proper disposal of used tissue gloves and masks 10. In case of symptoms such as cough, headache and mild fever, seek (advise to seek)medical attention. Stay home and self-isolate even until recovery from possible COVID- 19 and other viruses.				

		11. Wipe surfaces regularly				
2	Exclusion of vulnerable members of the society	- Ensure an all-inclusive public mobilization by taking deliberate actions targeting the vulnerable and marginalized members of the society i.e. female headed families, orphans, elderly and disabled - Ensure women are engaged adequately to ensure they take advantage of the exercise and vaccinate their animals	- Appropriate and adequate public sensitization and mobilization - Use of vernacular language to communicate appropriately and adequately to the targeted communities -	- No. of deliberate actions/ interventions targeting the vulnerable - No. of PLWD, women headed families, orphans and elderly targeted and reached - No. of women sensitized on the vaccination exercise		- CDVS - Mobilization team - Vaccination team leaders
3	Inadequate public sensitization and mobilization	- Adequate and timely sensitization of the public through appropriate means i.e. use of vernacular FM radio stations	- Vernacular FM radio station - Mobilization team - Vehicle mounted Speakers	- No. of radio talks on vaccination exercise mobilization -		- CDVS - Mobilization team Vaccination team leaders
B.	**PROCUREMENT**					
1	Unnecessary delays at the collection point	Prior arrangement with personnel at point of issue	1) Airtime 2) Fuel 3) DSA for officers, fuel and vehicle maintenance	1. Vaccine procurement and collection report	The cost has been provided for in the Sub – Project Budget	Chief officer & CDVS
2	Failure of accountability on the receipt of vaccines	Enter the vaccines in the vaccines ledger	1) S12 2) S13 3) Trainings conducted 4) Vaccines ledger	1) No of vaccines entered into the ledger 2) No of dully filled-in vaccines ledger		Vet store Manager

			entries			
3	Expired/ short expiry vaccines/Less No. of doses	Check on expiry dates and verify quantities before packing and collection	1) Airtime for communication 2) Telephone contacts of these personnel 3) Labor for offloading 4) Personal protective Clothing	- No of properly packed vaccines - No of non- expired vaccines - No of personnel trained on checking the vaccines		CDVS
4	Biosafety of transit Team/Exposure due to Spillage	1) Guidelines for emergency action upon exposure to the vaccines (antidote) 2) Provision of first aid kits 3) Provision of antidotes for field emergency use. 4) Provision of Personal protective clothing to the VO, Driver 5) Receptacles for disposal 6) Insurance of Personnel	1) PPEs 2) Receptacles for waste disposal 3) Antidotes 4) Insurance	- No of PPEs bought and worn - No of first aid kits used - No/ Volume of wastes disposed - No of antidotes used		CO/ CDVS
5	Spread of COVID-19 by staff during procurement and transportation of vaccines, and during publicity	-Provide double-cab vehicles carrying only two staff to ensure social distance, - staff and driver to wear face mask, -vehicle to be equipped with alcohol based sanitizer.	-Double-cab vehicles, -Face masks, -Alcohol based sanitizers. Temperature Guns	-No of Double Cab vehicles available, - No of face masks, soap and sanitizers procured, -Amount of clean running water availed, -No of people whose temperature is checked		CDVS
C.	ON TRANSIT					

	Impact issue/Risk	Mitigation	Required Resources/ Materials	Monitor*able Indicators	Cost	Responsible person
1	Vehicle breakdown	1) Authority letter from CO to drive outside working hours 2) Use of a serviceable vehicle in good condition. 3) Have alternative stand by Vehicle 4) Collaborative arrangement with health department for transport of vaccines like use of ambulances. 5) Use of designated drivers	1) Serviceable vehicle 2) Fuel 3) Competent driver 4) Having an alternative driver. 5) Alternative vehicle	a) Quantity of fuel used b) No of detail orders used c) Number of standby/ alternative vehicles d) No of breakdowns recorded	The cost has been provided for in the Sub – Project Budget	Chief officer/CDVS
2	Poor communication	Allocate enough air time while travelling from Hola to Nairobi and back.	Airtime	a) No of phone call/SMS sent		Chief officer/CDVS
3	Poor cold chain maintenance on Transit	1) Use of motorized cool boxes 2) Cold chain team that will be monitoring the temperatures 3) Sensitize on cold chain monitoring	1) Enough fuel 2) Temperature monitors 3) Cool boxes	a) No of temperature monitors installed b) No of vehicles with motorized cool boxes		CDVS
4	Inadequate staff at the Store to off load and count the vaccines	Staff mobilization in good time both casuals and regulars.	Lunches for the offloading and counting staff	a) No of off loaders		Chief officer/CDVS
5	Biosafety of Transit Team/Exposure due to Spillage	1) Provision of Personal protective clothing to the store man, off-loading staff 2) Provision of clean water at the store	1) PPEs 2) Receptacles for waste disposal 3) Subordinate staff responsible for	a) No of vaccines broken/damaged b) No of PPEs issues c) No of waste receptacles availed		Chief officer/CDVS

		3) Receptacles for disposal	cleanliness			
6	Lack of gadgets to monitor vaccines temperatures	1) Transport and storage Temperature monitors to be in the cool boxes and fridges.	1) Temperature monitors	1) No. of temperature 2) monitor gadgets available	Provided for in the budget	M&E/ CDSO
D	AT COLD STORE					
	Impact issue/Risk	Mitigation	Required Resources/ Materials	Monitoring Indicators	Cost	Responsible person
1	Poor cold chain maintenance on storage	1) Deep freezers and fridges. 2) Alternative source of power in case electricity fails e.g. Generators 3) Monitoring by the storekeeper. 4) Alternative storekeeper in case of absence. 5) Preparation of icepacks	1) Freezers and fridges 2) Icepacks 3) Generator	a) No of deep freezers and fridges bought b) No of generators availed for alternative power c) No of ice parks prepared	The cost has been provided for in the Sub – Project Budget	Chief officer/CDVS
2	Power disconnection and Blackout	Timely payment of electricity bills installation of automatic standby generator	Automatic Standby generator.	a) No of automatic standby generators available		Chief officer/CDVS
3	Inadequate storage Capacity	1) Procurement of more freezers 2) Strengthen the sub county cold chain facilities	1) Finances to procure additional Freezers and fridges at the level of the Sub County.	a) No of freezers and fridges bought/ repaired/ serviced		Chief officer/CDVS
4	Faulty deep freezer/ Fridges	1) Frequent checks of the freezers and fridges 2) Have a back-up freezer	1) A developed checklist 2) Funds for repairs	a) Amount of funds allocated for repair and maintenance b) No of back up freezers c) No of fridges/ deep		CDVS

				freezers serviced/ repaired/ bought		
5	Inadequate cold chain Materials	1) Procure enough polythene tubing for making ice packs 2) Or alternatively avail dry ice.	1) Polythene tubing 2) Device/frozen Carbon dioxide	a) No of polythene tubing bought b) Amount of dry ice/ frozen carbon dioxide procured		Vet cold chain/store manager
6	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 thermometer b) Temperature tracing data sheet c) No/ frequency temperature checks		Vet cold chain/store manager
7	Fire incidences	Installation of fire extinguishers in the store. Train team on fire safety	1) Training on fire safety 2) Fire extinguishers	a) No training for firefighting b) No of fire extinguishers installed c) No of fire drills		Chief Officer/ CDVS
8	Biosafety of Vaccination Team/Exposure due to Spillage	1) Provision of Personal Protective Equipment 2) Provision of clean water at the store 3) Receptacles for disposal	1) PPEs 2) Storage Water Tank 3) Receptacles for waste disposal	a) No of broken/damaged vaccines b) No of PPEs availed c) No of accidental spills		Chief Officer/ CDVS
E	TRANSIT TO VACCINATION SITE					
	Impact issue/Risk	Mitigation	Required Resources/ Materials	Monitoring Indicators	Cost	Responsible person
1	Cold burns by ice packs as you collect vaccine from the refrigerator and packing in the cool	Get proper protective gear (industrial gloves)	Industrial gloves	a) No of gloves and other PPEs available b) No of ice burns reported	The cost has been provided for in the Sub – Project Budget	CDVS

	box					
2	Picking of expired or leaking vaccines and diluents from the store when dates are not checked well	1) Verification; 2) Having a checklist to ensure the correct quantity and number of equipment are taken. 3) Keeping a vaccine stores list indicating dates of vaccine expiry	1) Checklist	a) No of checklists developed		Vet cold chain/store manager
3	Forgetting some vaccination equipment and vaccines	Prepare checklist	A) Vaccines and drugs -vaccines -Diluents -antihistamines -antidote -Surgical spirit -plastic tubes for packing vaccines B) Vaccination equipment Needles (hypodermic) G14 and G16 -automatic syringes 50mls and 30mls -disposable syringes 20mls,10mls and 5mls -disposable needles G 18 11/2 -cool boxes	a) no of vaccines doses, diluents, antihistamines, antidotes, surgical spirits and plastic tubing available		Vaccination team leaders
				b) no of vaccination equipment available		

			-forceps -cotton wool -Monitoring thermometer -ice packs -stickers -writing materials (pens/marker pens/note books) -Tool box -ice tubing for packing the vaccines -Glass barrels			
5	Vehicle breakdown	1) Use of a serviceable vehicle in good condition. 2) Have alternative stand by Vehicle 3) Collaborative arrangement with health department for transport of vaccines.	1) Serviceable vehicle 2) Fuel 3) Competent driver 4) Having an alternative driver.	a) DSA and fuel used b) No of detail orders requested c) No of breakdown reported d) No of standby vehicles used		CCO/ CDVS
6	Inadequate adherence to the protocol on 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 b) No of sensitizations conducted		CCO/ CDVS
7	Breakdown of Cold Chain	1) Procure New Cool Boxes, Proper icepacks 2) Preparing of makeshift shade at Vaccination Sites 3) Mapping out Stakeholders who can support	1) New cool Boxes	a) No. of new cool boxes procured b)		CDVS

8	Biosafety of Vaccination Team/Exposure due to Spillage	1) Provision of Personal protective clothing to the vaccination team, 2) Receptacles for disposal	1) PPEs 2) Receptacles for waste disposal	a) No. of PPEs available b) No. of waste receptacles available		CCO/CDVS
F	VACCINATION					
	Impact issue/Risk	Mitigation	Required Resources/ Materials	Monitoring Indicators	Cost	Responsible person
1	Lack of coordination of the program.	1) Pre vaccination meeting 2) Carrying Out Proper Publicity 3) Mapping Out Areas with Livestock In Advance 4) Proper Planning of Vaccination Schedule/Program 5) Quality crush pens to help in restricting the animals during vaccination.	1) Consulting Local Administration And Herdsmen 2) Consultation With Vaccination Team	a) No. of consultation meetings held b) No. of minutes written c) Number crushes repaired/ constructed	The cost has been provided for in the Sub – Project Budget	(CDVS) Vaccination team leaders
2	Poor Quality Equipment which breaks during vaccination	Procuring Best Quality Equipment	1) Automatic Syringes, 2) Extra Glass Barrels, 3) Needles 4) Waste Receptacles	a) No. of automatic syringes, extra glass barrels and needles procured b) No and type of equipment broken down		CCO – L/stock CDVS
3	Misconduct/ Unethical behavior by officers	1) Maintain high level responsibility by team members 2) Discipline and observe professional ethics 3) Tough disciplinary measures to be instilled to the culprits	1) COR 2) Code of Ethics	a) No. of show cause/warning letters written and served b) No of cases of misconduct reported		CCO – L/stock CDVS

4	Failure to present animals for vaccination	1) Proper and extensive Publicity 2) Consult with the community the convenient day 3) Proper community mobilization and sensitization on the importance of livestock vaccination	1) Vaccination program 2) use of all local languages for publicity 3) Engage the locals and area political leaders in publicity. 4) Use the media (TV, Radio, Newspaper) 5) -posters 6) –public address –Banners	a) no. of planning for vaccination program developed b) No. publicity campaigns through radios, posters, sms made. c) No / proportion of farmers who have availed/ not availed livestock for vaccination d) No of home-based vaccinations conducted e) No. of community sensitization sessions held f) No. of community members sensitized		CO – L/stock CDVS Local leaders (chiefs)
5	Sexual Exploitation and Abuse (SEA):	-Establish Worker's code of conduct which is in line the existing laws and regulations to prevent occurrence of SEA and ensure workers adherer to it -Continuous sensitization of the workers/staff and the community on the need to adhere to the rules of the code of conducts of the vaccination program -Put in place reporting and response centre for complainants and victims -Ensure timely investigation of such complaints and conclusive follow-up on such cases	- code of conduct for the workers - sensitization materials -compliant register	No. of codes of conduct developed – no. of workers and community members sensitized -No. of SEA cases registers -No. of SEA cases resolved -No. of SEA cases unresolved		CDVS/ CESSCO/ vaccination team GBV Expert Local CBO/ NGO

		-Establishment of properly functioning GRM centre for receiving, recording and ultimate follow-up and amicable resolution of community grievances -Engage and sensitize women and girls on channels of reporting and the importance of timely reporting of SEA cases				
6	Gender-based Violence (GBV) at the community level**:**	-Develop and implement provisions that ensure that gender-based violence at the community level is not triggered by the Project, including: -effective and on-going community engagement and consultation, particularly with women and girls; -Review of specific project components that are known to heighten GBV risk at the community level, e.g. compensation schemes; employment schemes for women; etc. -Specific plan for mitigating these known risks, e.g. sensitization around gender-equitable approaches to compensation and employment; water services; etc. -Ensure adequate referral mechanisms are in place if a case	-code of conduct for the workers - sensitization materials -compliant register	- No. of codes of conduct developed - No. of workers and community members sensitized -No. of community sensitization sessions held -No. of GBV cases registers -No. of GBV cases resolved -No. of GBV cases unresolved		CDVS/ CESSCO/ vaccination team GBV expert Local CBO/ NGO

		of GBV at the community level is reported related to project implementation.				
7	Injuries and exposures to the hazardous chemicals. These include the physical injuries to the personnel, farmers and animals.	1) Procuring of Protective Gear, First Aid Kits and Antidotes 2) Establishing good crushes	Gum Boots, Caps, Face Masks, Overalls, Gloves, First Aid Kits	a) No. of PPEs bought b) No of accidents/ incidences reported		CDVS CO- L/stock
8	Snake/Spider/ Scorpion Bites And Stings	1. Ensuring that teams, sleep in safe places away from bushes and known risky areas 2. Anti-venoms for every team	1) Anti-venoms	a) No. of anti- venoms bought and administered b) No of cases of snake/ spider/ scorpion bites/ stings reported		CCO – L/stock CDVS, PHO
9	Poor Restraint Of Livestock	1) Quality crush-pens to help in controlling the animals during vaccination. 2) Establishing new Crushes and repairing of existing ones 3) Involvement of CDRs to help in restraining animals	Mobile crushes and Finances	a) No. of crushes repaired / used or temporary crushes b) No. of CDRs in the teams		CCO – L/stock CDVS
10	Indiscipline Cases such as theft of drugs and general misconducts	1) Counseling to the team 2) Reprimanding the culprits 3) Replacing the culprits	Team Working	a) No. of indiscipline cases reported		CDVS Vaccination Team Leader
11	Livestock in inaccessible areas	1. Adequate sensitization during publicity to encourage target beneficiaries to avail their animal to a designated	1) Publicity prior to vaccination exercise 2) Well maintained vehicles	a. Publicity report b. no. of well-maintained vehicles available c. amount of fuel consumed		CCO/CDVS

		vaccination site which is accessible for the team	3) Fuel			
12	Poor communication network coverage	1) Provide Satellite Phones 2) Publicity 3) Local FM Stations	1) Airtime 2) Posters 3) DSA	a) No. of phone calls b) No. of posters displayed c) No. of talk shows made		CCO/ CDVS
13	Sick animals brought for Vaccination	Provide Supportive Treatment Drugs	Finance to procure support drugs i.e. albendazole, multivitams, oxytetyracyclin, penstrep, tylosin	a) No. of supportive drugs procured and used b) No of sick livestock treated before vaccination		SCVO/ CDVS
14	Vaccine Wastage	1) Estimate the numbers of Livestock per site during publicity 2) Reconstituting vaccine in small quantities	Vaccine register	a) No. of vaccines procured b) No. of vaccine used c) Vaccination report		TEAM LEADER/ CDVS
15	Adverse reaction of animals to vaccine.	1) -Provide essential antidote drugs e.g. dexamethasone, anti-histamine, adrenaline.	Finances for procuring essential antidote drugs	**a)** No of doses/ mls administered **b)** No of animals reacted to the vaccine/drug		SCVO/CDVS/drug Manufacturers/poison board
16	Pastoralists picking wastes (de-wormer bottles) for their own use	a) Create awareness during publicity that all the wastes are hazardous and will be carried for proper disposal & accountability; b) waste disposal team will be assisting in collecting, segregating and disposing off all waste as per the waste management regulation	DSA Waste receptacle	a) No. of waste receptacles available b) Volume of wastes disposed by category c) No of used containers left on-site		Vaccination team Leader/ CESSCO/ PHO/NEMA

17	Injuries (a) to the technical officers during the vaccination exercise	PPE (personal Protective Equipment). Insurance cover for the Private practitioners	-Face mask -Overall -gum boots -Disposable gloves -Rain coat -Fully equipped first aid kit per team. -antidote	a) no. of PPEs procured b) no. of injuries reported C) No. of first Aid Kits		SCVO/CDVS/CCO
	(b) Injuries to the animal handlers	Proper restrain animals Procure insurance cover for the Non GoK staff	-Proper constructed crushes -First aid drugs/kit	a) no of crushes constructed/repaired b) no of first aid kit & drugs procured c) no. of injury cases reported		SCVO/CDVS
	(c) Injury to the Animals	1. Proper restrain and handling 2. Handle adult and young animals separately	-Aerosol sprays -Antibiotics -suture materials - Cotton wool	a) no. of animal injuries reported b) no. of antibiotics procured and used		Vaccination Team leader
18	Spread of Covid-19 during the actual vaccination and interaction with community members	-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	a) No of face masks, soap and sanitizers procured, b) Amount of clean running water availed, c) No of people whose temperature is checked		CPC,SCVO, SCPHO
G	POST VACCINATION					
	Impact issue/Risk	Mitigation	Required Resources/ Materials	Monitoring Indicators	Cost	Responsible person
1	Inadequate labeling especially of vaccines returned from the	Supervisors from the field should clearly inform the cold Chain manager of the vaccines	Water proof stickers clearly labeled with the details of	a) No. of unused vaccines with labels		Vaccination Supervisors / leaders

	field,	,the batch number and expiry dates of the vaccines returning from the field before receiving them for storage	vaccine details			
2	Biosafety of Vaccination Team/Exposure due to Spillage	1) Provision of Personal protective clothing to the store-man, off-loading staff 2) Provision of clean water at the store 3) Receptacles for disposal	1) PPEs 2) Receptacles for waste disposal 3) Subordinate staff responsible for cleanliness	a) No. of PPEs available b) No. Cases of injuries/ accidents/ incidences reported and treated/ addressed		SCVO/CDVS/ CCO
H	DISPOSAL OF WASTE					
	Impact issue/Risk	Mitigation	Required Resources/ Materials	Monitoring Indicators	Cost	Responsible person
1	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 sodas counterfeits -can cause physical injuries to both human and animals e.g. broken glass vials, glass barrels, needles	1) Sharps immediately placed in bio-hazard containers or sharp receptors. 2) Receptors used to three-quarter full 3) All wastes at the vaccination sites to be collected in a proper manner so that they can be disposed of as per NEMA protocol	Provision of appropriate waste receptacle Licensed and accredited Incinerators-TRCRH, •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 Quantity/ volume of wastes incinerated Quantity/ volume of wastes disposed at designated county waste disposal sites Quantity of wastes incinerated at the licensed incinerators Cases of animal poisoning/ complication from consuming vaccination wastes	45,000	CDVS, CESSCO, NEMA, Public Health

	- 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 (vaccination needles, vacutainer needles, scalpel blades, broken glasses)					
2	Waste ingested by animals causing intestinal obstructions:	Segregation, collection, storage of infectious material for Incineration	One plastic receptacle per day per Team	a) Cases of animal poisoning/ complication from consuming vaccination waste b) No. of waste receptacles procured		CDVS, Public Health
3	Plastics Non-hazardous waste e.g. water bottles, cartons, gloves, papers	Segregation, collection, storage of hazardous material for Incineration	One plastic receptacle per day per Team	a) No. of waste receptacles procured		CDVS, CESSCO, NEMA, Public Health
4	Bio-safety of Disposal Team/Exposure due to Spillage	1) Provision of Personal protective clothing to the store man, off-loading staff 2) Provision of clean water at	1) PPEs 2) Receptacles for waste disposal 3) Subordinate staff responsible for	a) No. of PPEs procured b) No. of waste receptacles procured c) No. of personnel engaged		CDVS, Public Health, NEMA

		the store 3) Receptacles for disposal	cleanliness			

Table 15 Implementation Schedule

Activity		
	MAY 2021	JUNE 2021
Preparation of Pest Management Plan		
Submission of PMP to NPCU		
Anticipated banks clearance and closure		
Holding planning meeting		
Procuring of vaccines and other equipment		
Pre-vaccination exercise		
Mobilization and sensitization exercise		
Vaccine collection from KEVEVAPI		
Actual vaccination		
Monitoring and backstopping		
Post surveillance exercice (M&E)		

CHAPTER SIX: CONCLUSION AND RECOMMENDATION

After subjecting the proposed project to screening, it's evident that minimal negative impacts that can easily be mitigated are anticipated. On the other hand, the positive impacts are socio-economic and will contribute greatly towards increasing livestock productivity through disease controls, adaptation and resilience to climate change impacts and reduced greenhouse gases. In addition, if the proponent and the community undertake the necessary measures to mitigate the few negative impacts as identified in this IPMP, then there should be no reason to prevent the project from proceeding as planned.

CHAPTER 7 ANNEXES

ANNEX 7.1 DETAILED BUDGET

Project cost including community and County Government contribution.

No.	Activity	Budget item	No.	Unit Cost (ksh)	Total Cost (ksh)	Community Contribution(kshs)	County Contribution (kshs)	KCSAP Grant (kshs)	Total Amount (kshs)
1	Procurement of Vaccines	CBPP	200,000 Doses	Ksh 5	1,000,000	0	125,000	875,000	1,000,000
		CCPP	250,000 Doses	Ksh 10	2,500,000	0	500,000	2,000,000	2,500,000
		RVF	300,000 Doses	Ksh 10	3,000,000	0	500,000	2,500,000	3,000,000
		ppr	400,000	Ksh 6	2,400,000	0	200,000	2,200,000	2,400,000
		BQ	150,000 Doses	Ksh 18	2,700,000	0	360,000	2,340,000	2,700,000
		Bayticol	500 Liters	Ksh 3500	1,750,000	0	350,000	1,400,000	1,750,000
		Albendazole	1000 Liters	Ksh 400	400,000	0	100,000	300,000	400,000
		Oxteracycline Injection La	200 Pcs(100ml)	Ksh 300	60,000	0	20,000	40,000	60,000
		Multivitamin Injection	200 Pcs (100mls)	Ksh 300	60,000	0	20,000	40,000	60,000
		Penstrep Injection	200 Pcs 100mls	Ksh 300	60,000	0	20,000	40,000	60,000
2	Community Mobilization/ Publicity and	Cdvs	1 * 3 days	8,400	25,200	0	0	25,200	25,200
		VO	3*3days	7,000	63,000	0	0	63,000	63,000

	sensitization on safe use of pesticides and disposal of used containers.	LO	4*3days	7,000	84,000	0	0	84,000	84,000
		AHA	3*3days	7,000	63,000	0	0	63,000	63,000
		CDR	3*3days	1,000	9,000	0	0	9,000	9,000
		Area Chief	3*3days	1,000	9,000	0	0	9,000	9,000
		PHO	3*3days	7,000	63,000	0	0	63,000	63,000
		Driver	3*3days	3,000	27,000	0	0	27,000	27,000
3	Disease Surveillance	Cdvs	1*4days	14,000	56,000	0	0	56,000	56,000
		VO	3*5days	7,000	105,000	0	0	105,000	105,000
		LO	4*5days	7,000	105,000	0	0	105,000	105,000
		AHA/lab tech.	3*5days	7,000	105,000	0	0	105,000	105,000
		CDR	3*5days	1,000	15,000	0	0	15,000	15,000
		Driver	3*5days	3,000	45,000	0	0	45,000	45,000
4	Vaccination	VO	3*20days	7,000	420,000	0	0	420,000	420,000
		LO	4*20days	7,000	560,000	0	0	560,000	560,000
		AHA	9*20days	7,000	1,260,000	0	0	1,260,000	1,260,000
		CDR	3*20days	1,000	60,000	0	0	60,000	60,000
		Driver	3*20days	3,000	180,000	0	0	180,000	180,000
		Cold chain maintenance.(cool boxes, freezers, gas /electric fridges electricity bills)	3 Sub-counties	300,000	900,000	0	400,000	500,000	900,000
		Fuel.	2000litrs of Diesel	105	210,000	0	0	210,000	210,000

		Protective Gear - ppes (Overall, Gum boots, Dust coats, Hand Gloves)	25 officers	6,500	162,500	0	162,500	0	162,500
		Automatic syringes and hypodermic needles.	50ml syringes – 30pcs	8,000	240,000			240,000	240,000
			30ml syringes – 30pcs	8,000	240,000			240,000	240,000
			10ml syringes – 30pcs.	6,000	180,000			180,000	180,000
			10 gross of gauge 14 X ½ needle	5000	50,000			50,000	50,000
		Mobile crushes.	Black metallic pipes 2.0 " and angle lines 4x2	9	150,000	0	0	1,350,000	1,350,000
		Construction of makeshift crushes, Mobilization of livestock keepers and availing of the animals for vaccination	fencing materials 15 wards		1,080,000	1,080,000	0	0	1,080,000
	ESMP	Facilitation	5*10days	8400	420,000		100,000	320,000	420,000
	Procurement and evaluation						100,000	200,000	300,000

5	Collection and Central Disposal of Empties	1 NEMA	4 days	8,4000	33,600	0	0	33,600	33,600
6	Supervision and Follow-ups	1 CO	1*15days	10,500	157,500	0	0	157,500	157,500
		1 CPHO	1						
		1 CDVS	1*15days	8,400	126,000	0	0	126,000	126,000
		1 CTAC	3*15days	8,400	378,000	0	0	378,000	378,000
		CSG/CPSC	2*15 days	8,400	252,000	0	0	252,000	252,000
		Driver	1* 15 days	3000	45000	0	0	45000	45000
	Totals.					**1,080,000.00**	**2,957,500.00**	**19,271,300.00**	**23,308,800.00**
7	**Total project cost: (kshs)**								**23,308,800.00**
	Community contribution: (kshs)								**1,080,000**
	County Contribution (kshs)								**2,957,500**
	Total KCSAP grant applied for: (kshs)								**19,271,300.00**

ANNEX 7.2 LIST OF VACCINES, DRUGS AND PESTICIDES TO BE USED IN THE LIVESTOCK VACCINATION PROJECT

	TRADE NAME	SCIENTIFIC NAME (Active Ingredient)
1	Bayticol	Flumethrin 1%
2	Albafas	Albendazole 10%
3	Alamycin	Oxytetracycline 20%
4	Penstrep	Penicillin and streptomycin combination
5	Riftvax	Rift Valley Fever vaccine
6	Caprivax	CCPP vaccine
7	Contavax	CBPP vaccine
8	Blanthax	Black Quarter and anthrax vaccine

ANNEX 7.3 VACCINE COLLECTION CHECKLIST

i)Vaccine details

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

ii)**Vaccine issued by;**

Name	Personal Number	Institution	Signature
1			
2			

iii)Vaccine collected by:

Name	Personal Number	Designation	Signature
1			
2			

ANNEX 7.4 FACILITATION BUDGET FOR THE CAMPAIGNS

A). Disease surveillance.

1. Tana Delta Sub County.

Budget.

S/No.	**Name**	**Design**	**J/G**	**Lunch Ksh.**	**Days**	**Per Deim Ksh.**	**Days**	**Total Ksh**
,1	Dr Onga're Omondi	SCVO	M	-	-	7,000	5	35,000
2	Mr Benard Maranga	AHO	K	-	-	7,000	5	35,000
3		AHA				4,200	5	21000
3	Driver		G	--		4,200	5	21,000
4	CDR			1000		-	5	5,000
								117,000

2. Tana River Sub-County.

Budget.

S/no	***Name***	***Designation***	***J/G***	***Rate.***	***Days***	***Total.***
01	Dr. Paul Mwamburi	CDVS	P	14,000	4	56,000/=
02	Dr. Renson Bakari	SCVO	M	7000	5	35,000
03	Mohamed Ijema	AHO	L	7000	5	35,000
04	Gordon Mweri	LO		7,000	5	35,000
05		CDR	-	1,000/=	5	5,000/=
06		DRIVER	G	4,200/=	5	21,000/=
		TOTAL				**187,000/=**

3. Tana North Sub-County.

Budget.

S/n	Name	P/No.	Design	J/G	Diem	Days	Total
1	Njau Thuo	2009054365	CVO	N	7000	5	35,000/=
	Kofa Balesa		AHO		7000	5	35,000
2	Tonui Samuel	1987062067	CLHA	L	7,000	5	35,000/=
3	Wario Omaro	12726377	CDR	N/A	1,000	5	5,000/=
4	Mohamed Buya	20140026580	Driver	G	4,200	5	21,000/=
	TOTALS.						**131,000/=**

B). Community mobilization/publicity.

1. Tana Delta Sub -County

Budget.

S/No.	Name	Design	J/G	P/no.	Lunch Ksh.	Days	Per Deim Ksh.	Days	Total Ksh
1	Dr Onga're Omondi	SCVO	M	2011002536	-	-	7000	3	21,000
2	Mr Benard Maranga	AHO	K	2009086794	-	-	7000	3	21,000

3	Mr Abae Micheal	CLHA	K	1986076013	-	-	7000	3	21000
4		PHO	L		-	-	7000	3	21000
5		Chief	K					-	3,000
7	Driver		G		--		42000	3	12600
8	CDR						-1000	3	3000
	TOTALS								102,600

2. Tana River Sub- County

Budget

Name	***Design***	***J/G***	***Rates.***	***Days***	***Total (Kshs)***
Dr. Renson Bakari	VO	M	7,000/=	3	21,000
Mohamed Ijema	LO	K	7,000/=	3	21,000
Mweri Kombo	AHA	J	7,000/=	3	21,000
	CDVS		8400	3	25200
	CDR	-	1,000/=	3	3,000
	Driver	G	4,200/=	3	12,600
	Chief		1,000/=	3	3,000
	PHO		7,000/=	3	21,000
TOTAL					**127,800**

3. Tana North Sub-County.

Budget

	Name	P/No/Id No.	Designation	J/G	Diem	Days	Total
1	Dr. Njau Thuo	2009054365	SCVO	N	7,000	3	21,000/=
2	Tonui Samuel	1987062067	CLHA	L	7,000	3	21,000/=
3	Moses Kofa	20160167144	AHA	G	7000	3	21,000/=
4			PHO	L	7,000	3	21,000/=
5			DRIVER	G	4,200	3	12,600/=
6			CDR	N/A	1,000	3	3,000/=
7			CHIEF		1,000	3	3,000/=
	TOTALS.						**102,600/=**

C). Vaccination

1. Tana Delta Sub-County

	Name	Design	J/G	P/no.	Lunch Ksh.	Days	Per Deim Ksh.	Days	Total Ksh
1	Dr Onga're Omondi	CVO	M	2011002536	-	-	7000/=	20	140,000/
2	Mr Benard Maranga	AHO	K	2009086794	-	-	7000/=	20	140,000/=

3	Mr Abae Micheal	CLHA	K	1986076013	-	-	7000/=	20	140,000/=
4	Mr Hamisi Maro	CLHA	K	1988058312	-	-	7000/=	20	140.000/=
5	MR Hassan Ali	AHA	G		-	-	42000/=	20	84,000/=
6	Driver		G		--		42000/=	20	84,000/=
7	CDR				1000/=	20	-	-	20,000/=
	TOTALS								748,000/=

budget.

2. Tana River Sub County Budget

	Name	**Design**	**j/g**	**rates**	**days**	**Total(Kshs)**
1	Dr. Renson Bakari	VO	M	7,000/=	20	140,000
2	Mohamed Ijema	LO	K	7,000/=	20	140,000
3	Daudi Abae	AHA	M	7,000/=	20	140,000
4	Ronald Mkalla	AHA	G	4,200/=	20	84,000
5	Wellington Mwanza	AHA	K	7,000/=	20	140,000
	-	Driver	G	4,200/=	20	84,000
	-	CDR	-	1,000	20	20,000
	TOTAL					**748,000**

3. Tana North Sub-County Budget.

S/No	Name	P/No.	Design.	J/G	Diem	Days	***Total(Kshs***
1	Njau Thuo	2009054365	CVO	N	7,000	20	140,000/=
2	Tonui Samuel	1987062067	CLHA	L	7,000	20	140,000/=
3	Alow Dahir	2016116763	AHA	G	4,200	20	84,000/=
4	Moses Kofa	20160167144	AHA	G	4,200	20	84,000/=
5	Patrick Odeo	2011012515	AHA	G	4,200	20	84,000/=
6			CDR	N/A	1,000	20	20,000/=
7			DRIVER	G	4,200	20	84,000/=
	TOTALS.						636,000/=

D. Vaccines collection from Embakassi.

S/No	**Name**	**Design.**	**Number**	**Days**	**Rates**	**Total**
2	Paul Mwamburi	CDVS	1	3	14200	42600
3	Paul Mwamburi	Fare	1	1	10000	10000
4						52,600

E.) Supervision

S/No	**Name**	**Design.**	**Number**	**Days**	**Rates**	**Total**
1	Paul Mwamburi	CDVS	1	15	8,400	126,000

2	Kanchoru Gollo	CO	1	15	10500	157,500
3	Edward Menza	NEMA	1	15	8400	126,000
4	Wambua Nzioka	CDLP	1	15	8400	126,000
5	Evans Nyarang'o	CDF	1	15	8400	126,000
6	Samuel Baya	CDA	1	15	8400	126,000
7	Ali Musa	PHO	1	15	8400	126,000
	Totals					913,500

E). Budget summary.

1. Tana Delta Sub County.

S/no.	**Activity.**	**Amount (kshs)**
1	Surveillance.	117,000.00
2	Sensitization & publicity	102,600.00
3	Vaccination campaign.	748,000.00
	Grand total.	**967,600.00**

2. Tana River Sub County

S/no.	**Activity.**	**Amount (kshs)**
1	Surveillance.	*187,000.00*
2	Sensitization & publicity	*127,800.00*
3	Vaccination campaign.	*748,000.00*
	Grand total.	389,600.00

3. Tana North sub County.

s/no.	**Activity.**	**Amount (kshs**
1	Disease Surveillance.	131,000.00
2	Sensitization & publicity	102,600.00
3	Vaccination.	63,600.00
4	**Grand total.**	**297,200.00**

3. Supervision & back stopping.

s/no.	Activity.	Amount (kshs
1.	Supervision.	913,500.00
2.	Vaccines collection	52,600.00
3.	**Total.**	**966,100.00**

S/NO.	***Sub County***	***Amount (kshs).***
1	Tana delta.(garsen)	967,600.00
2	Tana River (Galole)	389,600.00
3	Tana North.(Bura)	296,600.00
4	Head Quarter.(Hola)	966,100.00
5.	**Grand Totals**	**2,619,900.00**

ANNEX 7.5: CTAC APPROVAL

(For official use only)

Comments by the Relevant CTD:

Recommended: YES

DR. RENSON CHARO BAKARI

Date:

County Director of Veterinary Services
Tana River County
P.O. Box 116
HOLA

Comments by the CTAC:

Endorsed: YES Date of meeting: 21ST SEPTEMBER 2020

(Attach minutes)

Chairman Name: SAMUEL M. BAYA signature:

COUNTY DIRECTOR OF AGRICULTURE
TANA RIVER COUNTY
P. O. Box 10 - 70101
HOLA

Forwarded to NPCU by:

Name: PETER K. MUNYOKI .... Signature:

Date: 07-01-2021 .... Official rubber stamp:

KENYA CLIMATE SMART AGRICULTURE P... C...
P.O. BOX 10 - 70101
HOLA

ANNEX 7.6: LIST OF PARTICIPANTS DURING CONSULTATIVE MEETINGS

No.	Name	Designation	Id/Emp No.	Sign