REPUBLIC OF KENYA

MINISTRY OF AGRICULTURE, LIVESTOCK FISHERIES & COOPERATIVES

STATE DEPARTMENT OF LIVESTOCK

ANIMAL IDENTIFICATION AND TRACEABILITY STRATEGY

2020 - 2030

FOREWORD

Increasing human population, economic growth and urbanization have spawned increased consumer demand for food of animal origin. There has also been a concomitant increase in consumer health consciousness regarding food quality and safety in the domestic and international market. Current global economic forecasts project robust growth in international live animal and commodities trade. The exploitation of these arising economic opportunities is however currently curtailed by the global adaptation of increasingly stringent Sanitary and Phyto-sanitary Measures and other Technical Barriers to Trade.

Animal identification and recording systems were historically developed by breed associations to maintain pedigree details of animals, by breeding organizations to implement genetic improvement programmes for which performance recording is a prerequisite, by livestock improvement organizations to assist farmers in the management of their herds and by veterinary health institutions and organizations to distinguish the health or vaccination status of herds or individual animals.

Globally, Animal Identification and Traceability have now gained recognition as the basis for credible animal health certification in international trade and evaluation of the risk of disease introduction, spread and food safety. Initially referred to as Livestock Identification & Traceability Systems (LITS), the onus to cater for other classes of animals like dogs, cats, and wildlife necessitated a shift in nomenclature to Animal Identification & Traceability (ANITRAC) as a key plank in Kenya's push for the modernization, commercialization and improved competitiveness of the livestock sub-sector.

The need for the adoption of ANITRAC in Kenya has been recognized for over a decade during which diverse pilot studies, trials and limited programs have been implemented. These scoping studies have provided valuable input in the development of a national Strategy that is deemed responsive to Kenya's economic and socio-cultural realities. These include the predominance of traditional extensive pastoral production systems; the prevalence of livestock theft and cattle rustling; opportunities for innovative management of livestock on ICT platforms; and opportunities for partnerships with Kenya's vibrant private sector and other stakeholders in the animal resource industry.

ANITRAC will be anchored on national policies on livestock and will be implemented both at County and National Government levels through a shared data management platform to improve regulation and planning for the sub-sector. Implementation of the ANITRAC Strategy is projected to be self sustaining in the long term but with initial interim support from national and county governments, the private sector and development partners.

It is envisaged that ANITRAC will contribute to the resolution of: difficulties in enforcement of livestock movement; inadequate access to credit and insurance using animals as collateral; increased incidents of antimicrobial resistance in humans and animals arising from residues in foods of animal origin; restricted access to opportunities in global trade due to failure to demonstrate the existence of a functional animal traceability system.

Implementation of this Strategy will be enforced through a modern legal framework encompassing regulations based on national, regional and international standards. To ensure the realization of its objectives which are critical to the goals of the animal resource industry, periodic monitoring and evaluation will be carried out by the national government in conjunction with the county governments. The Strategy covers a ten-year period starting from 2020 to 2030.

Hon. Peter G. Munya, EGH, MGH

Cabinet Secretary

Ministry of Agriculture Livestock Fisheries and Cooperatives

NAIROBI

PREFACE

The use of ANITRAC in animal health management, certification of animals and animal products for trade and providing quality and safety assurance for food of animal origin is a relatively new global phenomenon. Although the need for its adoption and implementation in Kenya has been recognized for over a decade, there has not been a cogent strategy for its coordinated and phased implementation.

Development of the ANITRAC Strategy has arisen from the realization of the need to build a framework that can guide the long-term implementation of animal identification, registration and traceability in the country. The Strategy has therefore been crafted to respond to emerging demands in livestock production, animal disease control, animal welfare, livestock marketing and trade and security in cattle raising areas. The Strategy is informed by OIE and FAO guidelines and experiences learnt from benchmarking visits to Namibia and Botswana. It has reviewed the recommendations and lessons learnt from pilot studies carried out in the country over the last nine years and socio-cultural considerations among diverse livestock keepers in Kenya. It also took cognizance of ongoing development of Livestock Export Zones under the Kenya Vision 2030.

Animal diseases have the potential to significantly affect international trade. For this reason, animal identification and traceability systems, which help to prove freedom from disease, are becoming a requirement for access to specific regional or international markets. As a result, many countries worldwide, including emerging economies, have put such systems in place.

Furthermore, various international agreements and standards address animal identification and recording for traceability. It, thus, became necessary to broaden the scope of animal recording guided by a strategy and adoption of a new set of Regulations that embody a multipurpose approach integrating animal identification and registration, live animal traceability, animal health information and performance recording.

Mr Harry K. Kimtai, CBS
Principal Secretary
State Department for Livestock

EXECUTIVE SUMMARY

Animal Identification and Traceability (ANITRAC) aims "to satisfy domestic and international consumer requirements on safety and quality of animals and animal products" which will be partly achieved through "building an efficient and sustainable system for animal identification to achieve farm to fork traceability and secure livestock assets". Consequently, ANITRAC will be a key component in responding to challenges that hamper livestock production, livestock breeding, animal health, animal welfare, food safety certification and trade in animals and animal products.

Implementation of ANITRAC will support the institutionalization of modern livestock identification electronic technologies alongside other conventional and traditional methods. This will be achieved through the use of integrated platforms that will include use of printed and electronic ear tags, data management systems and other approved electronic identification devices. Identification and traceability will be anchored on national legislation with consideration for relevant national policies and international guidelines.

Establishment and implementation of a functional Animal Identification and Traceability System requires the cooperation of government Ministries, Agencies and Departments alongside the Private Sector, Development Partners and other stakeholders in the livestock industry. Hence, this Strategy will be implemented by the ministries responsible for veterinary matters and internal security at the national level; county government departments responsible for veterinary services; livestock keepers including small-scale producers, large-scale commercial livestock production enterprises and pastoralists; livestock transporters; processors of livestock products; traders in livestock and livestock products and other stakeholders in the animal resource industry.

The Strategy will operationalize national policies on animal identification and traceability to support animal productivity; breeding improvement programs; disease prevention and control; livestock movement control; surveillance of zoonotic diseases; certification of export of animals and animal products; livestock quality assurance and enhanced consumer confidence. In addition, it will address the perennial problem of cattle rustling and its attendant insecurity and destabilization of communities.

The growing domestic and global demand for animal products and emerging opportunities for exporting animal products have encouraged governments and livestock organizations in Kenya to invest in developing infrastructure and

processes to improve the genetic potential of their animals, control livestock diseases, develop traceability systems to track animals and their products, and enhance the capacity of people to adopt new technologies and systems.

The primary purpose of animal identification and traceability systems is to provide information to farmers, service providers, policy-makers and so on, to enable them to make informed decisions and to implement suitable plans. Such systems benefit a variety of disciplines including: animal and public health and disease control; food safety and quality; market access, trade and economic growth; genetic improvement and productivity; and stock theft mitigation. These benefits and their beneficiaries are summarized as follows under four headings: animal traceability; animal health information; performance recording; and other benefits.

ANITRAC is expected to provide information on animals and animal products and a reliable monitoring mechanism that will strengthen the government's regulatory function in the livestock sub-sector. Its implementation will require a concerted communication thrust at both levels of government to demonstrate its benefits to stakeholders and elaborate its planned phased implementation nationally in view of existing resource constraints and unique practices and challenges that beset the Kenyan Livestock Sector.

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ACRONYMS

ANITRAC	Animal Identification & Traceability
IGAD	Inter-Governmental Agency on Development
OIE	World Organization for Animal Health
KNBS	Kenya National Bureau of Statistics
GDP	Gross Domestic Product
RFID	Radio Frequency Identification Devices
WTO	World Trade Organization
SPS	Sanitary Phyto-Sanitary
TBT	Technical Barriers to Trade
DVS	Director of Veterinary Services
CDVS	County Director of Veterinary Services
ICT	Information Communication Technology
TADs	Trans – Boundary Animal Diseases

DEFINITION OF TERMS

Animal: a member of the animal kingdom except human whether alive or dead including mammals, birds, reptiles, insects, fish and shell fish;

Animal identification: combination of the identification and registration of an animal individually, with a unique identifier or collectively by its epidemiological unit or group with a unique animal identifier;

Animal registration: action by which information on animals (such as identification, animal health, movement, certification, epidemiology, establishment) is collected, recorded, securely stored and made appropriately accessible and able to be utilized;

Animal identification and recording systems consist of all or part of the integrated components of animal identification and registration, animal traceability, animal health information recording and animal performance recording, taking into account existing legislation, organization/administration, technical devices and databases.

Animal owner is a person (physical or moral) who has a legal title or right to the animals regardless of whether he/she owns the premises on which the animals are kept.

Animal traceability: the ability to follow an animal or group of animals during all stages of life or back to the point of origin and includes “trace-backs”, or “trace-forwards”. Point of origin could be a farm, batch, market, ranch, production line, timeframe, field or supplier;

Animal tracking: the ability to establish the relative location of animal(s) at any given time;

Central database: means a centralized computerized system for collection of data, storage, retrieval analysis and use. The central database will be a register managed and maintained by the Director;

Establishment: means any land, premises or place including any part of land, premises or place where animals are kept;

Livestock: a farm animal kept and reared for any socio-economic value;

Product traceability: the ability to identify from whom and to who an animal product is received or supplied.

CHAPTER ONE: INTRODUCTION

The National Census of 2019 showed that the Kenya animal resource base comprised of 2.2 million dairy cattle, 559,000 dairy beef, 13 million indigenous cattle, 19.3 million sheep, 28 million goats, 4.6 million camels, 1.2 million donkeys, 443,000 pigs, 30.3 million indigenous chicken, 5.6 million layers, 2.9 million broilers, 561,000 rabbits and 1.2 million beehives and an undetermined number of companion, game and aquatic animals (KNBS, 2020). These animal resources are not adequately identified for purposes of trade, food safety and security.

Animal resources in Kenya include livestock, wildlife, farmed wildlife, companion and aquatic animal species. The animal resource industries is very critical to many rural livelihoods and the national economy as it contributes 22 per cent of the National Gross Domestic Product (GDP), (Behnke, 2011). Growth in Agriculture Value Added at constant prices increased to 6.6 per cent in 2018 from 1.8 per cent recorded in 2017 due to favourable weather condtitions. The value of marketed livestock and livestock products increased by 8.3 per cent to KSh 146.8 billion in 2018 accounting for about 30% of marketed agricultural products (KNBS,2019).

1.1 Justification

Animal Identification and Traceability (ANITRAC) is a requirement for local and international trade in animals and animal products, food safety and security of animal assets. However, the current legal and regulatory frameworks do not adequately address challenges in animal identification, registration and traceability. This has curtailed Kenya's push to grow exports of livestock and products to international markets as it is almost impossible to engage in international trade without compliance with modern traceability requirements. This strategy aims to build a framework to address these challenges.

Increasing incidences of trade sensitivities diseases, food safety concerns and cattle rustling are a major constraint in livestock trade. The development of robust ANITRAC systems in Kenya is part of a raft of integrated measures meant to strengthen the administration of Sanitary and Phyto-Sanitary (SPS) standards and measures that govern international trade.

There is latent potential for improved performance of the animal resource industry driven by the implementation of Animal Identification and Traceability through improvement in animal health, animal welfare and increased access to markets.

Identification and traceability of animals and animal products will be used to achieve the following:

a) ascertain origin and ownership and deter theft and misrepresentation of animals and animal products;
b) surveillance, control and eradication of animal diseases;
c) compliance with requirements of international trade;
d) compliance with country-of-origin labeling requirements;
e) improvement of supply-side management, distribution, delivery systems and inventory controls;
f) facilitation of value-based marketing;
g) isolation of source and extent of quality-control and food-safety problems; and
h) minimizing product recalls and support for more effective crisis management protocols.

Additionally, the Strategy will contribute towards conflict resolution, peace and reconciliation and assist the detection and recovery of the stolen animals.

1.2 Scope of the Strategy

This Strategy will apply to all animals and animal products. It will cover the whole country. Its implementation will be staggered and incremental according to national priorities and resources. It will be mandatory for all prioritized animals to be identified and registered under the Strategy which will cover a ten-year period starting from 2020 to 2030.

This Strategy will support the country in the development of integrated multipurpose animal recording systems that integrate animal identification and registration, animal traceability, animal health information and performance recording. The Regulations to implement this Strategy should have a practical focus to support decision-making when implementing sustainable animal recording systems, drawing on lessons learned from past and current experiences. There is also a need for guidelines that afford greater consideration to low and medium-input production environments.

CHAPTER TWO: SITUATIONAL ANALYSIS

2.1 Basis of the Animal Identification and Traceability System

Increasing human population, economic growth and urbanization are projected to cause increased consumer demand for food of animal origin and heightened consumer health consciousness. This has given rise to a growing demand for assurance of food safety and quality from "farm" to "fork". Animal identification and registration constitute the basis of any recording system. The allocation of a unique identification number for individual animals or groups of animals, premises and owners within a country, is, therefore, a prerequisite for operating any animal recording system. Other modules or systems, such as traceability and performance recording, can be added or linked later.

The development of a national animal identification and recording system requires the presence of national regulation, particularly if animal health and traceability are the primary objectives. Kenya has diverse approaches to animal production that vary from intensive, semi-intensive, extensive and mixed systems. The dominant methods of production are traditional pastoral systems for beef animals and small stock while small holder production prevails in the dairy sector. Commercialization of agriculture has been identified as a key priority in national development and is the main thrust of vision 2030. It is also core to medium term plans and sector strategies and policies including the Veterinary Policy, National Livestock Policy, Agricultural Policy, Food and Nutrition Policy and the Agricultural Sector Transformation and Growth Strategy.

The Veterinary Policy; Food and Nutritional Policy and the National Livestock Policy provide an undertaking by the national and county governments to implement international standards especially sanitary standards in order to facilitate trade in livestock and livestock products. Currently, the Branding of Stock Act Cap 357 provides for the registration of brand-marks of cattle. Hot iron branding however, has technical and operational limitations in meeting requirements for individual animal identification.

The competent authority should be a coordinator and facilitator of the various stakeholders rather than the sole implementer of the system. Availability of regular training and education programmes for end users is vital to the

implementation and maintenance of any animal recording system. It is equally important to provide online assistance to end users to troubleshoot problems as they arise.

2.2 Public Private Sector Partnerships in Animal Identification & Registration

Increases in animal production and productivity through breeding and improved farm management are private goods inviting private sector contributions. The identification of benefits that stakeholders derive from participation in the system requires participatory stakeholder consultations. Stakeholder buy-in is a prerequisite for economic sustainability. The public and private nature of animal identification and recording systems calls for participatory approaches and public–private partnerships for the development and operation of animal recording systems.

The participation of stakeholders is likely to increase if related benefits are clearly visible. The different uses and benefits of the system should, therefore, be explored in the planning stage through a participatory needs assessment. The benefits of participation and the disadvantages of non-participation in an animal recording system must be clearly defined and communicated to all stakeholders.

When developing a new animal recording system, it is essential to assess the underlying motivations and the prevailing conditions and production systems – and to determine what is feasible in each given situation. While countries can learn from each other's experiences, country-specific research is invaluable, as there is no one-size-fits-all model. Any system must be adapted to the circumstances in which it will operate, including production environments and socio-economic conditions, the state of livestock service provision and veterinary institutions, levels of capability among farmers and officials, the state of communication networks and the availability of resources (both human and financial).

The dual nature of the public and private benefits of animal identification and recording systems has several consequences. Country experiences have shown that purely public systems are not sustainable, as implementation and operating costs are high. Before any decision is taken to introduce an animal

recording system, it is important to carry out a cost–benefit analysis of the project. However, benefits are often intangible and not quantifiable in monetary terms. The economic analysis is then limited to cost calculations and to comparing the costs of different options for the establishment of animal recording systems or schemes. The results should be communicated to stakeholders including funding agencies. Ensuring stakeholder commitment from the outset is essential for successful implementation of any animal recording project. While public funding is often essential at the outset of such projects, it is important for long-term sustainability that the system evolves so as to enable sharing of operating costs among all beneficiaries, including farmers.

2.2 International Standards in Animal Identification & Registration

Animal identification, registration and product traceability are critical components in livestock production, breeding, disease surveillance, food safety certification and food quality assurance. International standards on animal identification and traceability are governed by World Organization for Animal Health (OIE) recommendations; the International Committee for Animal Registration (ICAR) and the International Standards Organization (ISO). International standards also allow for interoperability at regional or international levels, as certain aspects of the systems, such as theft control or breeding, require regional collaboration.

2.2.1 OIE Guidelines on identification and traceability of live animals.

The World Animal Health Organization (OIE) has issued general principles on identification and traceability of live animals and guidelines for the design and implementation of identification systems to achieve animal traceability are set out in OIE *Terrestrial animal health code*, published by OIE. These guidelines describe the essential elements of an identification and traceability system and the logical steps to be followed when developing such a system. However, they do not provide substantial guidance on how to implement these steps, or practical examples and information on the pros and cons of the different options.

2.2.2 ICAR guidelines.

ICAR is a worldwide not-for-profit organization that promotes the standardization of animal recording and productivity evaluation. Its aim is to promote the improvement of farm animal recording and evaluation through the formulation of definitions and standards for the measurement of traits of economic importance. The ICAR International Agreement of Recording Practices, which contains voluntary standards, rules and guidelines concerning all aspects of animal recording, is available on the ICAR website.25 This document describes in detail the acceptable methods of animal identification and recording, and refers to these descriptions as guidelines.

The ICAR guidelines are primarily written by and for technicians who run highly developed state-of-the-art animal identification and performance recording systems. They provide good reference material on all matters relating to performance recording, including methods of animal identification, measurement, and calculation of traits and genetic evaluation. However, the ICAR guidelines do not provide direction for adapting these general principles to conditions in mid and low-income countries.

2.2.3 Food and Agriculture Organization Guidelines

They provide a comprehensive description of the benefits and beneficiaries of performance recording, the planning and conduct of performance recording schemes, and provide stepwise and detailed guidance on the institutional and operational organization of such schemes, and the utilization of resulting information, with a special focus on medium-input production systems. Since the publication of the FAO secondary guidelines, a number of developments have occurred in the fields of livestock production and trade. These include a surge in the importance of animal health and traceability, which has become one of the main drivers of animal recording. It has, therefore, become necessary to consider performance recording in the more general context of national animal recording and to establish linkages with animal identification and registration, traceability and animal health information.

2.3 Challenges in Implementation of the Animal Identification and Registration System

Implementation of this Strategy requires compliance with legislation and where majority animal owners who are private citizens must find value in identifying their animals. Development of integrated multipurpose animal recording systems in mid and low-income countries like Kenya can pose a challenge given the presence of large numbers of small-scale producers and the prevalence of low and medium-input systems. Specific challenges include;

a) Low export volumes of livestock and livestock products currently with limited access to lucrative niche markets.
b) Prevalence and persistence of Trans-boundary Animal Diseases (TADs) that have been eradicated in other parts of the world.
c) Breed and nutrition related long maturation times and low market weights leading to low productivity and profitability of livestock enterprise.
d) Rampant cattle rustling that occasions insecurity, internal displacement of persons and loss of property and lives due in part to inadequate animal identification, registration and law enforcement.
e) Reduced uptake of hot iron branding and increasing concerns on damage to hides and skins economic losses to the leather industry.
f) Sub-optimal enforcement of livestock movement controls.
g) Inadequate access to credit and insurance using animals as collateral due to lack of reliable identification technologies.
h) Increased incidents of antimicrobial resistance in humans and animals arising from residues in foods of animal origin arising from inadequate identification and trace-back mechanisms.

2.4 Objectives

Broadly, the Animal Identification and Traceability System Strategy is intended to support livestock production, animal health, animal welfare and food safety in order to protect livelihoods and enhance trade in animals and animal products.

Specific objectives of the Strategy are to:

a) improve market access of livestock and livestock products from Kenya;
b) increase producer access to credit and livestock insurance facilities using identified livestock as collateral;

c) curb illegal livestock movement within and across the country;
d) facilitate control of trans-boundary and trade-sensitive animal diseases;
e) improve the quality and safety of food of animal origin through strengthened product traceability;
f) curb livestock theft and related insecurity; and
g) Support breeding programs in animals and exchange of animal genetics

2.5 Vision

Regional leader in safe animal and animal products trade

2.6 Mission

To enhance trade in animals and animal products through an effective animal identification and registration system enabling a "farm to fork" traceability and sustainable livestock resources to support livestock production, animal health, animal welfare and guarantee safety of food of animal origin.

2.7 Strategic Model

2.7.1Animal traceability

Animal traceability will form the basis of sanitary control systems in the production of food of animal origin constituting the link between animal health, public health, and food safety and quality. Food safety and quality control; Value addition to products; Export and certification are the main pillars.

2.7.2 Animal health information

Animal health information recording an essential tool for the prevention and control of diseases and the improvement of veterinary health management systems.

2.7.3 Performance recording

Performance recording depend upon the purpose and scope of the recording system and comprises; establishment of baseline animal performance levels; evaluation of production system alternatives; and individual animal management and genetic improvement

2.7.4 Focusing on deterring livestock theft and prevention of fraud

Animal registration is necessary in the payment of subsidies authentication, preventing stock theft, and locating and rescuing animals in disaster-struck areas; animal insurance.

CHAPTER THREE: ANIMAL IDENTIFICATION AND TRACEABILITY

Animal Identification and Traceability will be implemented in animals across all production systems and ecological zones in the 47 counties of the country. This will be carried out incrementally in all livestock species and other domestic animals.

The design and development of the system will be based on the following considerations: outcomes of risk assessment; the animal and public health situation including zoonoses and related programmes; animal population parameters such as species and breeds, numbers and distribution; types of production; animal movement patterns; available technologies; trade in animals and animal products; cost-benefit analysis and other economic indices;, geographical, environmental and cultural considerations .

Additional factors for consideration in the design of the system include affordability, adverse effects to the food value chain, animal welfare, reliability, sustainability, exploitation of available technological innovations, building synergy with the private sector for sustainability and the type of the animal.

3.1 Animal identification

Animal identification involves marking an individual animal or a group of animals with a unique identifier by means of characters, signs, symbols, letters, naming or a combination of two or more identifiers. This entails identification of animals by species, breed, age, sex and color and linking them to their owners and production premises.

Livestock identification facilitates traceability of animals and animal products for the purposes of disease control, animal health services, ownership, livestock trade, animal welfare, certification, food safety, production, breeding and genetics, and security. Livestock Identification provides critical data for planning purposes.

All live animals for export not already identified will be tagged or branded as appropriate at the pre-export finishing and processing stage using approved identification devices and registered in the central database.

The Director of Veterinary Services (DVS) will prescribe alpha numeric and colour codes for identification devices for use in Kenya. The DVS shall, in consultation with participating county governments and the ministry responsible for internal security, prescribe unique county color codes for livestock identification in cattle rustling prone areas.

3.1.1 Identification methods

The existing methods of identification include; RFID ear tags, visual printed ear tags, hot-iron branding, rumen bolus, microchips, paint marks, photographs and biometrics, ear notching and naming.

3.1.2 Prescribed technologies for Kenya

The following are the recommended identification methods in Kenya.

a) **Large food animals** - electronic ear tags and/or printed visual ear tags.
b) **Small food animals** - electronic ear tags and/or printed visual ear tags.
c) **Companion and sport animals -** microchips and/or collars
d) **Others** – the DVS will prescribe appropriate identification methods for other animal species from time to time.
e) **Wildlife** – as determined by the Kenya Wildlife Service in consultation with the Director of Veterinary Services (DVS).

The DVS will approve and authorize frequencies and identification coding in adherence to ICAR and ISO guidelines to cater for the country and the county.

3.2 Animal registration

Registration is an action by which information on animals such as identification, animal health, animal movement, certification, breed, sex, production and family lineage is collected, recorded, securely stored and made appropriately accessible and capable of being utilized by producers, service providers, regulators and industry under the supervision of the competent authority. ANITRAC will also endeavour to register key production, marketing and animal holding facilities such as quarantine stations.

3.3 Traceability

Animal traceability refers to the ability to follow an animal or group of animals during all stages of their lives while product traceability means the ability to identify from whom and to whom an animal product is received or supplied.

ANITRAC will achieve traceability through capturing, maintaining and providing strategic access of data to critical nodes along the animal value chains including feed lots, quarantine facilities, slaughter facilities, processing facilities and markets. This data will include among others, animal registration information; premises; animal health and husbandry history; animal movements; trail of ownership and termination. At termination, products will be graded and linked to the animal records through Bar codes, QR codes or other suitable technologies.

3.4 Tracking

Animal tracking refers to the ability to trace the whereabouts of an animal at any given time. It involves the use of satellite and active radio signal detection.

Whereas animal identification globally is based on requirements for traceability and food safety, Kenya's unique livestock production practices and prevalence of livestock theft has created a strong demand for real-time tracking technologies as a solution to cattle rustling.

Limitations in battery power, size of devices and costs constrain the viability of large-scale deployment of this system in public programs. At the moment, there are no suitable off the shelf technologies available that can offer universal and affordable real-time remote tracking.

Ongoing and future technological innovations and satellite communication might provide solutions to device size, concealment and powering. All new technologies should however be subjected to field trials and validation by the Director of Veterinary Services to establish their applicability and compatibility with local systems before consideration for implementation.

CHAPTER FOUR
IMPLEMENTATION FRAMEWORK

Implementation of this Strategy will be guided by an appropriate legal framework stipulating the devices or technologies for use in livestock identification and traceability; animal species to be identified; when to place identification devices and information to be recorded against the identification devices.

The legal framework will take into consideration and review existing legislation. It will be based on standards of livestock identification and traceability as provided by the World Organization for Animal Health and other relevant standard setting organizations. It will be informed by the Veterinary Policy, Animal Welfare Strategy, Agricultural Policy, National Livestock Policy, various disease control strategies, this Strategy and other connected policies and strategies.

4.1 Stakeholders

Implementation of this Strategy will be undertaken by the national government, county governments and the private sector and other stakeholders in the animal resource industry.

4.1.1 National government

National government institutions that will perform significant roles in the implementation of this Strategy include the ministry and state department responsible for veterinary matters; ministry responsible for internal security; the National Treasury; Directorate of Veterinary Services and relevant professional associations like the Kenya Veterinary Association (KVA), Animal Production Society (APSK), Animal Technicians and Technologists Association of Kenya (ATTAK) , Kenya Association , Kenya Animal Scientist Practitioners Association (KASPA) and Kenya Veterinary Para-professionals Association (KVPA).

The Ministry and State Department responsible for Livestock will take charge of resource mobilization for implementation of this Strategy; develop enabling legislation; collaborate with ministries responsible for internal security, ICT and trade and consult with county governments.

The Ministry responsible for Internal Security will enforce LITS laws; control cattle rustling using provisions of this Strategy and enabling regulations alongside other methods and verify animal ownership in consultation with the Director of Veterinary Services and County Directors of Veterinary Services. The National Treasury will be responsible for funding the implementation of this Strategy.

The Director of Veterinary Services (DVS) is the Competent Authority responsible for application of WTO-SPS Agreement; Codex standards and animal identification and traceability guidelines as provided in treaties ratified by Kenya. The resource mobilization for ANITRAC will be undertaken by the Principal Secretary while the DVS will be responsible for coordination of the ANITRAC program at the national level; regulatory control; consultation with the county governments on the implementation and capacity building of technical officers at the counties.

In addition, the DVS will be responsible for authorization and serialization of animal identification devices; certification of livestock and livestock products for export and management of the ANITRAC central database. The DVS will also undertake monitoring and evaluation of the implementation of this Strategy in collaboration with county governments.

The professional associations like KVA, APSK, ATTACK, KASPA and KVPA will be responsible for creating awareness on LITS and training professionals and other stakeholders. They will also carry out advocacy for LITS and support its implementation. National government administrators will support awareness creation and sensitization on LITS among stakeholders.National institutions such as Kenya Livestock Marketing Council and other Livestock Institutions' roles will be spelt out in the implementation framework.

4.1.2 County governments

The key institutions responsible for implementation of this Strategy in the counties include; the County Departments responsible for Livestock comprising of veterinary services and livestock production, producers, marketing organizations, transporters, slaughter houses, processors and traders in livestock and livestock products.

The County Department responsible for Livestock will provide resources for implementation of ANITRAC at the county level. The County Director of Veterinary Services will be responsible for identification and registration of

livestock; registration of farm holdings, establishments or premises; appointment of county inspectors; coordination of application of identification devices on animals; collection and uploading of data on the central database; certification of livestock and livestock products for local trade; issuing of livestock movement permits incorporating livestock identification information, and coordination of recovery of identification devices from slaughtered or dead animals.

4.1.3 Private Sector

Livestock Identification and Registration is a primary function of the animal owners who are the core of the private sector in this Strategy. The Private Sector will also be responsible for the supply of relevant technologies and equipment in consultation with the Director of Veterinary Services and County Directors of Veterinary Services. The Private Sector, including livestock producers and marketing organizations, will also carry out capacity building. Abattoir operators will ensure that animals for slaughter are identified; and with the assistance of meat inspectors, retrieve and submit identification devices to the County Director of Veterinary Services.

Private animal health service providers will be incentivized and enjoined in the identification, registration, and submission and update of animal health data.

4.2 Acquisition and application of identification devices

Implementation of ANITRAC requires mobilization of the whole livestock sub-sector to increase the uptake and use of prescribed technologies. A comprehensive capacity building, stakeholder engagement and communication program will be implemented to ensure that industry participants exercise their requisite roles in implementation of the System**.** The Director of Veterinary Services will develop specifications and invite bids from qualified firms for supply of selected identification devices.

The tag supply firms will only produce, acquire or import tags with authorization from the DVS for every batch in compliance with the adopted coding structure and issued range of tag numbers and device frequencies. The tag supplier will sell tags to authorized counties, farms, farmer cooperatives and registered public and private animal health services providers and submit monthly records of tag allocations to DVS. A fee will be levied on the tag supplier for the administration and management of the central database.

The Director of Veterinary Services will issue national guidelines and Standard Operating Procedures for application of tags and registration of animals, owners and premises to ensure national uniformity. County Directors of Veterinary Services and Animal Health Service Providers will apply identification devices on animals and complete electronic or paper registration for submission to the County ANITRAC Officer who will have access to the central database. The cost of identification devices will be borne by livestock owners. The manager of the central database (DVS) will continually reconcile identification codes of issued devices against the number of animals registered.

The County Directors of Veterinary Services will coordinate prompt reporting of all treatments, vaccinations, changes of ownership, sale, movement or death of animals by livestock keepers, private Animal Health Service Providers and registered establishments to the DVS through the central database.

Meat inspectors at abattoirs will be responsible for submitting paper or electronic reports of identification devices of slaughtered animals to County Directors of Veterinary Services. All significant meat inspection findings will be reported against the animal's identification number as part of national abattoir disease surveillance.

CHAPTER FIVE
FINANCING, MONITORING, EVALUATION AND REPORTING

5.1 Financing

The National government will fund capacity building of technical officers both at the county and national government levels and private service providers on ANITRAC implementation. In addition, the national government will procure firms to supply identification devises to counties and other end users as well as finance the M&E of ANITRAC implementation in collaboration with the counties.

County governments will fund awareness creation on ANITRAC to livestock keepers. They will also fund the coordination and implementation of the ANITRAC program at the county level. Livestock keepers will buy identification devices for application on their animals from qualified suppliers .

The private sector will be responsible for procurement of specified identification devices; they will also facilitate distribution of the devices to the counties and support capacity building of technical service providers and end-users of identification devices.

Financial resources to support implementation of the ANITRAC programme will also be mobilized from development partners; NGOs; the Private Sector including financial institutions and insurance companies; Faith Based Organizations and farmer organizations including breeder societies and the Kenya Livestock Marketing Council.

5.2 Monitoring, evaluation and reporting

Monitoring and Evaluation (M&E) will be a central feature of the ANITRAC Strategy. It will involve routine data collection, reporting, analysis and feedback to ensure that its objectives are achieved.

A framework incorporating a comprehensive checklist will be developed by the DVS in collaboration with the counties to guide Monitoring and Evaluation of LITS implementation. Results from the analysis of the M&E reports will be used to inform decision-making; determine if the desired objectives are being met and to guide policy direction of ANITRAC.

Counties will provide quarterly and annual reports to the DVS according to an agreed reporting format. The DVS will compile an annual country report for ANITRAC and share with counties and other partners.

The M&E for ANITRAC implementation will be jointly conducted by the national and county governments in sample counties once every Financial Year.

Fig 1: Pre-export consignment of goats in Taita Taveta County

Fig 2: Cattle printed visual ear tag