



REPUBLIC OF KENYA



ISILO COUNTY
GOVERNMENT



**Department of Agriculture,
Livestock & Fisheries Development**

SECTORAL PLAN 2018-2027

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FOREWORD

I feel privileged to be associated with the development of Agriculture Plan (ASP) 2018-2027. The ASP outlines a broad road-map to be embraced by the Department of Agriculture, Livestock and Fisheries Development of Isiolo County in addressing the third medium term objectives of the vision 2030 strategy.

The requirement for the development of the ASP is provided for in the County Government Act, 2012. ASP 2018-2027 is a sectoral elaboration of the County Integrated Development Plan (CIDP) and is the basis for budgeting and performance management. It builds on the achievements, challenges and lessons learnt from the implementation of programmes envisaged in the CIDP-1.

Traditionally, the sector has played a crucial role in ensuring food security, job creation, income generation and linkages to other sectors of the economy. However, for the county to reap the maximum benefit from the sector, the current subsistence level of agriculture production has to be fundamentally transformed to modern commercial and competitive production and marketing. In the last five years, the strategies adopted by the department under CIDP-1 have greatly improved production and productivity, with most sub-sectors getting into a sustained growth path.

Despite these efforts, the Agriculture sector continues to face various challenges, mostly as a result of unpredictable weather patterns occasioned by climate change and intermittent insecurity. We are still reliant on food aid from the humanitarian organizations and the National Government in spite of our county's potential to produce sufficient food to meet the demand of our population.

It is important to note that about 80% of the county's population lives in rural areas and derive their livelihood from the livestock sector. The sector is, therefore, key to addressing poverty and food insecurity. ASP strategies must, therefore, focus on activities aimed at improving the productivity of livestock, fisheries and crops sub-sectors to ensure availability and access to quality food. This entails the transformation of subsistence agriculture into commercial production through value addition while ensuring environmental conservation.

The government will strengthen collaboration and partnership Agriculture Sector stakeholders to ensure that programmes and projects elaborated in the ASP are supported. I, therefore, welcome our development partners, NGOs, foreign and local investors to partner with the Agriculture Sector to enjoin us in implementation of Agriculture Sector Plan 2018-2027.

I will also like to thank all those who contributed in one way or the other to the preparation of the Plan.

Dr. Mohamed Kuti,
Governor, Isiolo County

PREFACE

We had several aims in developing this Agriculture Sector Plan through a multi-stakeholder approach. Firstly, to be as inclusive as possible in harnessing the strengths and visions of all stakeholders in the county as well as external development partners. Second, to chart out a clear, targeted and results-oriented pathway in delivering our mandate to this county and contribute to the national goals as outlined in Kenya Vision 2030 and other planning frameworks. Third, to create a plan outline that will facilitate an M&E database for evidence gathering, reporting and influencing county policies in the Agriculture Sector. Fourth, to enable us to elaborate a framework for objective performance evaluation going forward.

As we analysed our sector successes and challenges in the post-devolution phase, we realized the need to change our development paradigm in order to effectively deal with the multiple and complex development issues affecting the county and the entire northern ASAL counties. In spite of the many achievements, more concerted efforts are required to address problems facing our communities effectively. It is the mandate of the Ministry of Agriculture, Livestock and Fisheries (MOA&F) to ensure the availability of adequate quality food for humans, create employment, wealth and resilience besides sustainable environmental management. We especially need to improve the feeding of our livestock, realizing that 80% of our population primarily lives off the livestock and have to adapt to the frequent challenges of climate change.

The ministry intends to provide enabling coordination environment for the county staff and our development partners to ensure that our pastoralists and agro-pastoralists reap maximum benefits from the available resources to enable them to meet their household needs, especially during drought. Similar efforts will be directed towards the production of cereals, pulses, green vegetables and agro-forestry in order to gradually eliminate malnutrition in our county. To achieve this, the ministry will coordinate delivery of efficient, quality and timely services as resources will allow. To this end, we will make efforts to harness resources from the County government, National Government and development partners as we look forward to enhanced cooperation. The County can graduate into food security and create a production surplus.

We intend to enhance farm mechanization services, provision of farm inputs, fish farming and complete development of M&E framework for quality data collection, implementation and creation of incremental achievements of MTP projects, including Flagship Projects, as envisioned in Kenya Vision 2030. As we strive to domesticate and enact country-specific laws, we look forward to continued collaboration and participation of all development and private partners, including the community members. Through training, the latter will be encouraged to take a leading role and own all initiated projects for sustainability.

Special efforts will also be directed at consulting with our neighbouring counties to ensure peaceful sharing of resources and co-existence, especially during drought. We aim to reduce Resource-based conflicts that usually hinder the provision of services and retard development.

Once again, I extend my heartfelt gratitude to all collaborators and urge them to sustain and enhance our development momentum. In the end, we shall all be remembered for what we have achieved for the current Isiolo residents and the future generation.

Dr. Lawrence Mwangela,
CEC, MOAL&F - ISIOLO COUNTY

ACKNOWLEDGEMENT

The County Executive Committee Member (CEC) for Agriculture, Livestock and Fisheries put together a team of technical experts and mobilized resources to have this document drafted and compiled. Thanks to the Director for Livestock Development Mr. Mohamed Dokata; Director for Veterinary Services, Dr. Joseph Muriira; Director for Fisheries Development, Mr. Felix Muthomi and Director for Agriculture Ms. Florence Kabubori for providing direction and support to the technical teams.

Our gratitude goes to the sector development partners and stakeholders who included NDMA, NGOs, CBOs and FBOs for their continued support during the drafting and compilation process of this document.

Special thanks also go to a smaller team of technical experts who fine-tuned the document. The members included the following: Silvester Mugo, Bernard Wafula, Dr. Dennis Mwongela, Amina Barchi and Golicha Huka.

I would also wish to thank Switzerland Development Support through Frontier Counties Development Council (FCDC) for financial and technical support by providing Guyo O Haro and Francis Chabari as short term experts towards the preparation of the Agriculture sector Plan.

Chief Officer
Livestock Production

Chief Officer
Agriculture

Chief Officer
Fisheries Development

ACRONYMS

AFFA	Agriculture, Fisheries and Food Authority Act
AMS	Agriculture mechanization Services
ASAL	Arid and Semi –Arid Lands
ASDSP	Agricultural Sector Development Support Programme
ASP	Agriculture Sector Plan
ASTGS	New Agriculture Sector Transformation and Growth Strategy
CAADP	Comprehensive African Agriculture Development programme
CEC	County Executive Committee Member
CIDP	County Integrated Development Plan
CLMC	County Livestock Marketing Committee
DAL&FD	Department of Agriculture, Livestock and Fisheries Development
DFZ	Disease Free Zone
DHIS	District Health Information System
DRSLP	Drought Resilience and Sustainable Livelihoods Programme
EDE	Ending Drought Emergencies
FAO	Food and Agricultural Organization of the United Nations
FBO	Faith Based Organisations
FCDC	Frontier Counties Development Council
FSCU	Establish Fish Seed Certification Units
Ha	Hectares
HIV/AIDS	Human Immune Virus/Acquired Immunity Deficiency Syndrome
ICT	Information and Communication Technology
IGAD	Intergovernmental Authority on Development
JASCCIM	Agriculture Sector Consultations and Cooperation Mechanisms
KCSAP	Kenya Climate Smart Agriculture Projects
KLMC	Kenya Livestock Marketing Council

KTBH	Kenya Top Bar Hive
KVB	Kenya Veterinary Board
LAPSSET	Lamu Port and Lamu-Southern Sudan-Ethiopia Transport
LMA	Livestock Marketing Association
M&E	Monitoring and Evaluation
MT	Metric Ton
MID-P	Merti Integrated Development Programme
MTP	Medium Term Plan
NCPB	National Cereals and Produce Board
NEPAD	New Partnership for Africa's Development
NIB	National Irrigation Board
NRM	Natural Resources Management
PPP	Public Private Partnership
Regal -AG	Resilience and Economic Growth in Arid Lands (Accelerated Growth)
RPLRP	Regional Pastoral Livelihoods Resilience Project
SNV	Netherlands Development Corporation
TIMPs	Technologies Innovations Management Practices
TLU	Tropical livestock Unit
UN-SDG	United Nations Sustainable Development Goals
VSF	Veterinarian without border, Switzerland



Executive Summary

EXECUTIVE SUMMARY

This Agriculture Sector Plan covers the 10-year period 2018-2027 as per requirements of the County Government Act 2012.

The document also makes explicit references to CIDP 1&2 and Kenya Vision 2030. This Sector Plan focuses on the Four core objectives: Food and Nutrition Security, Income Generation, Creation of Employments and Building Resilience of the majority of the households in Isiolo County. An estimated 80% of the population lives in rural areas, either as pastoralists or agro-pastoralists in the various irrigation sites in the county. The pastoralists especially are very vulnerable to the intense droughts now becoming a common occurrence in the drylands.

The Sector Plan also addresses the Big Four Presidential Agenda. By identifying Food and Nutrition Security, the impact contributes directly to the other two agendas - Human Health and Manufacturing. The 2018-2027 Plan includes a quick review of and builds on the sector activities and achievements of the 2013-2017 Implementation phases under the devolved county governance. Some of the significant results captured in the Review are an **expansion of areas under food production and improvement in productivity in effort to address issues of food security; expanded efforts in rangeland rehabilitation; increase in forage production; continuing emphasis in livestock disease control; expansion in the production of fish and honey products (apiculture).** The plan reviewed efforts in **manufacturing/processing** in the Agriculture, Livestock and Fisheries sub-sectors.

Admittedly, implementing activities in the 2013-2017 Phase faced significant challenges that must be addressed in the 2018-2027 period. Significant challenges faced included: the **shortage of resources, inadequate staff skills, low use of technology and ICT in agriculture, challenges of climate change, especially for the livestock and crop sub-sectors, inadequate sector-wide coordination and domestication of relevant policies needed to support implementation.** The Plan looks forward to including key areas of mechanization in agriculture for expanded production, resource mobilization and inclusivity of stakeholders in the County

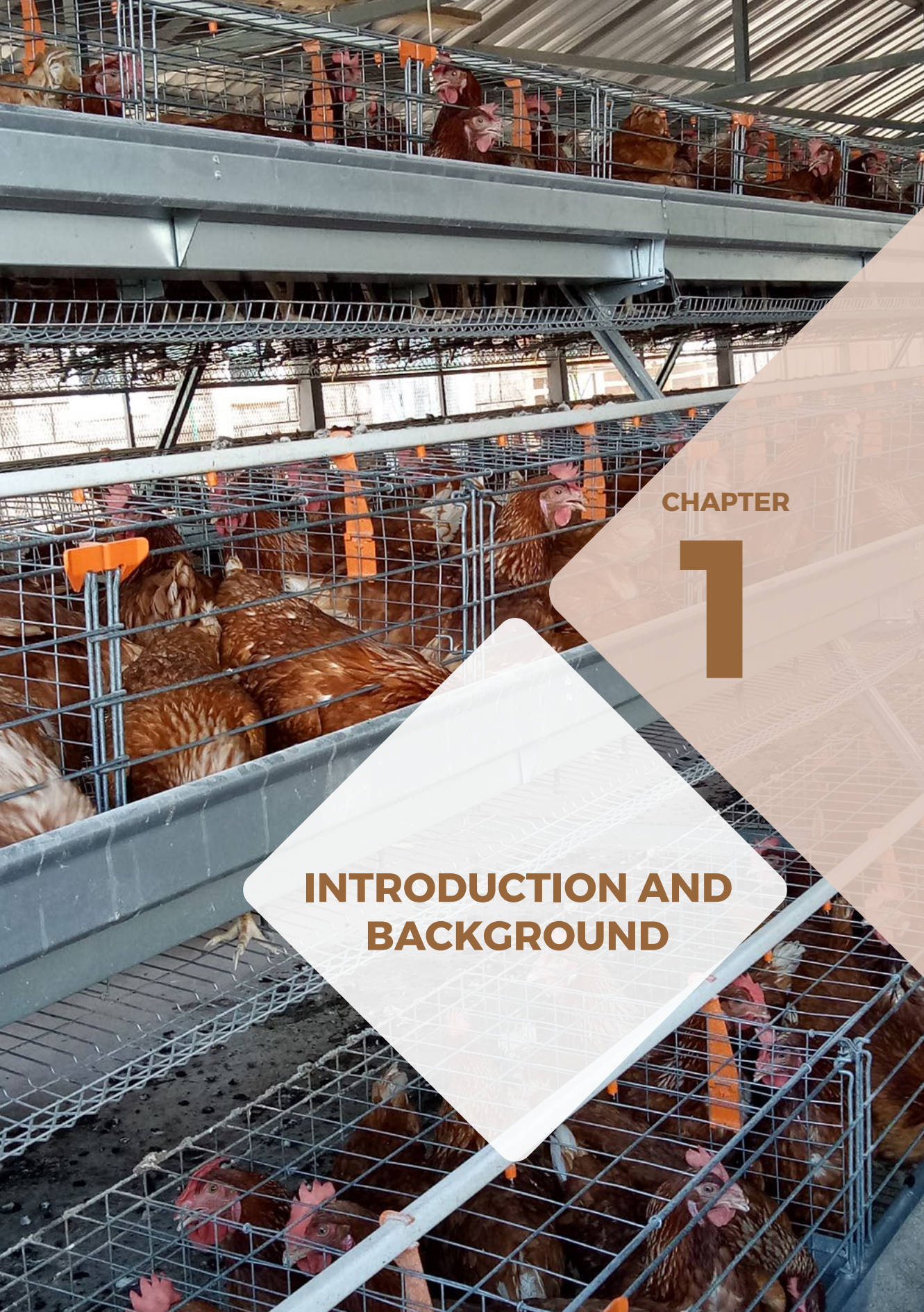
Government, National Government, private sectors and development partners. Activities will promote adaptation to climate change and promotion of value addition to expand opportunities for employment, especially for the youth.

The plan has set clear targets to achieve all the core objectives in all sectors, which makes M&E easy and allows performance assessment.

By the end of 2022, the sector sets out to achieve 39,128MT production of cereals (mainly maize and sorghum), 5,869MT of pulses and 3,550MT of oil annually. The sector aims to expand management of natural resources and rehabilitation of degraded lands, expand water harvesting through check dams to control floods, sand dams for water storage and boreholes for livestock and human water supply, strict livestock disease control through vaccination and surveillance, triple fish production through aquaculture and capture fishery, marketing and fish utilization campaigns.

The plan has projected targets for 2023 -2027 and 2028-2032 (MTPs 4 and 5 of K-Vision 2030) in an attempt to ensure food security, graduate into a meaningful economic contribution to Isiolo County. These projected targets will be adjusted as future inputs into CIDPs of the County. The Plan will be implemented through annual work-plans and each annual plan will build on the achievements of the preceding year. The Review-Plan processes are key in programmatic connectivity as required by the County Act of 2012.

Chapter 1 presents background information to the plan in a brief form. However, every effort has been made to keep the document brief and concise for ease of use. **Chapter 2** reviews the achievements and challenges experienced while implementing the 2013-2017 Phase. **Chapter 3** presents key issues to focus on delivering this Sector Plan. **Chapter 4** presents targets, broken into phases, as set out in Vision 2030. **Chapter 5** presents an Implementation Framework and the role of stakeholders in delivering this sector-wide plan.



CHAPTER

1

**INTRODUCTION AND
BACKGROUND**

Introduction and Background

1.1 County Profile

Isiolo is one of the Counties in the lower eastern region of Kenya. It borders Marsabit County to the North, Samburu and Laikipia to the west, Garissa County South East, Wajir County to the Northeast, Tana River and Kitui Counties to the South and Meru and Tharaka Nithi Counties to the South West. The County covers an area of approximately 25,700 km². It is primarily arid, with 65% of the land area being classified as very arid, 30% as arid, 5% semi-arid.

Most of the land in the county is flat low lying plain. There are six perennial rivers in the county, namely, Ewaso Ngiro North, Isiolo, Kinna, Bisanadi, Likiundu and Liliaba rivers. Ewaso Ngiro North River has its catchments area in the Aberdare Ranges and Mount Kenya with immense potential for irrigation. The County is generally hot and dry most of the year. Rainfall varies widely between 150 and 650 mm of rain per annum for very arid to semi-arid zones, respectively. The relatively high rainfall is due to the influence of Mountains and Nyambene Hills in the neighbouring Meru County.

The county has a population of 268,002 persons¹. It has two parliamentary Constituencies (Isiolo North and Isiolo South) and 10 wards, including Wabera, Bulla Pesa, Chari, Cherab, Ngare Mara, Burat, Oldo Nyiro, garba Tulla, Kina and Sericho.

Livestock production remains the most significant economic activity, with approximately 80% of the population relying on it. The numerous rivers offer great potential for irrigation as rain-fed agriculture is limited. Isiolo has abundant natural resources and endowed with three national game reserves, namely Shaba, Buffalo Spring and Bisanadi.

1.2 Justification for Sector Plan Development

One of the roles of the county government is to facilitate the development of a ten year sectoral plans to guide the sector development.

The Sector Plan promotes sector priorities by introducing sector programmes and projects that will transform the county through innovations. No funds shall be appropriated outside a planning framework developed by county executive committee members and approved by the county assembly.

Isiolo County Department of Agriculture, Livestock and Fisheries Developed the ASP 2018-2027 though belatedly **as required by the County Government Act 2012**. The core objectives of the sector plan are to enhance food and nutrition security, create meaningful employment-based for the majority of people living in the rural areas, generate income and alleviate poverty as well as strengthen the resilience of the communities to the frequent droughts and other climatic shocks experienced in the county.

The sector plan envisages sectoral linkages to discourage wastage of available resources while encouraging efficiency. It identifies various short and medium term sectoral plans while taking cognizance of the appropriate national policy goals of the government. These plans will be linked with the county spatial plan, township plans and county integrated development plan that provide a framework on which all development programmes and projects will be based.

As an essential component of CIDP, it is an important planning document for decision making in the County and is intended to guide the National, County governments, Development Partners and other stakeholders programs and projects in the realization of the social-economic transformation of the people.

The CIDP is aligned with Kenya Vision 2030² and its successive five-year Medium Term Plans³ (MTP), Sectoral Plans, Urban and City Plans are within the county. The third Medium Term plan (2018-2022) prioritizes policies, programmes and projects which generate broad-based inclusive economic

¹ CoK 2019: Kenya Population and Housing Census

² Republic of Kenya 2007: Kenya Vision 2030

³ Republic of Kenya 2013; 2018: Second & Third Medium Term Plans

growth, as well as faster job creation, reduction of poverty and inequality. It also provides integration of the United Nations Sustainable Development Goals⁴ (UN-SDG), The New Partnership for Africa's Development (NEPAD) 2001 and Comprehensive African Agriculture Development Programme (CAADP) Pillars as well as the New Agriculture Sector Transformation and Growth Strategy (ASTGS) 2018-2028 and National Government Big 4-Agenda (for the sector food security, agro-processing, blue economy, leather and textile) and Governor's manifestos.

1.3 Relevant Literature

Other national and county government development strategies and plans that have a bearing on Agriculture Sector are County CIDP 2013-2017; 2018-2022; County Agriculture Sector Plans / Strategic Plans 2013-2017; 2018-2022 (if available); County Agriculture and Livestock Policies; Kenya Vision 2030; MTP 2008-2012; 2013-2017; 2018-2022; Common Framework for Ending Drought Emergencies (EDE) 2015⁵; Agriculture Sector Development Strategy 2010 – 2020; Agriculture Sector Transformation and Growth Strategy 2019-2029⁶; Kenya Youth Agribusiness Strategy 2017 – 2021⁷; National climate change Response Strategy (NCCRS) 2010⁸ and National climate change Action Plan (2013)⁹, Draft National Policy on Disaster Management 2009; National Livestock Policy 2018, Draft County Livestock Policy, the Agriculture, Fisheries and Food Authority Act (AFFA) 2013 and Fisheries Act 2016.

1.4 Preparation of the Strategic Plan

The production of this Sector Plan was made possible through the leadership of the CEC member for Agriculture, Livestock and Fisheries Development in an all-inclusive process involving the sector's county directors, sub-county officers all working closely with a consultant through a write-shop process (Annex 4).

The team held consultative meetings and used both primary and secondary data in

preparation of the plan. The draft will be subjected to internal reviews and validation by sector technical group before submission of the final product which represents the crystallized thoughts on the strategic direction of the County Department of Agriculture, Livestock and Fisheries Development.

Through the support of Frontier Counties Development Council (FCDC), the consultants guided the planning team in the development of the sector plan through reviews and critiques of sector activity implementation during past 5 years, what should be focused on in the short, medium and long term and target setting for 2018-2032 planning period.

As a disclaimer: the "Reviews" carried out over the 2013-2017 phase of sector plan in the CIDP was neither an audit nor an evaluation of the period. Instead, it was a desk assessment and summary of information gathered during an internal three days write shops by the staff of the Department of Agriculture, Livestock and Fisheries Development. The contribution of the technical staff of the department who participated in the review is included in Tables 1-3.

1.5 Intended use of the plan

The plan is brief and intended to be a quick reference and hopefully accessible to all the Agriculture Sector stakeholders in the County. It is expected that there will be an opportunity to share the salient features and action points of the Sector Plan to a wide range of stakeholders as well as tabling the same to the County Assembly for adoption as required by the County Government Act of 2012.

4 United nations 2017: Sustainable Development Goal Report

5 Republic of Kenya 2015: Common Framework for Ending Drought Emergencies

6 Republic of Kenya 2018: Agriculture Sector transformation and Growth strategy

7 Republic of Kenya 2017: Kenya Agribusiness Strategy 2017-2021

8 Republic of Kenya 2010: National Climate Change Response Strategy

9 Republic of Kenya 2013: National Climate Change Action Plan

CHAPTER

2

**REVIEW OF
AGRICULTURE
SECTOR 2013-2017**

REVIEW OF AGRICULTURE SECTOR 2013-2017

2.1 Overview

Agriculture Sector Plan -1 was not developed during the MTP 2 as required by the County Government Act 2012 to actualize the content of CIDP-1; however, several sub-sector strategy papers were designed to interpret the content of CIDP 1.

Achievements, challenges and lessons learnt were derived from CIDP-1 in a retrospective review of the strategy papers addressing the issues contained in 2013 -2017 CIDP. Strategic issues, objective and sector strategies to address those issues were reviewed against the backdrop of socio and economic changes that have taken place between 2013 – 2017. Details of specific achievements and challenges as analysed by the sub-sector teams are shown in Tables 1, 2 and 3 below.

2.2 Achievements

Significant progress was recorded during the implementation of MPT II (CIDP-1); highlights of what worked well and reasons are as follows:

- 250 Ha of small irrigation projects and construction of 27 km of water canals developed through rehabilitation and expansion of existing irrigation schemes along Ewaso Nyiro River to boost food production
- 3,000 farmers benefited from quality farm inputs, subsidized fertilizers, drought-tolerant seeds, mechanization services as well as agro-based value chain development for producer groups
- Increased livestock production and productivity through enhanced disease control intervention, periodic vaccination campaigns, livestock product marketing, value chain (milk, meat, breed improvement) development for increased income, employment creation and food security
- Fish production increased from 20 MT in 2013 to 33 MT in 2017 through improved fish production, hygienic handling facilities and value addition.

Table 1: Agriculture Sub-Sector Review 2013-2017

Target / objectives MTP 1 & 2	Priority /Flagship item in CIDP and MPT 1&2	What was achievement	What did not work well
<p>Increase area under food crop production by 200 % through irrigation by 2017;</p> <p>77% of HH (over 18,000) food insecure</p>	<p>Rehabilitation and Expansion of 10,000 Ha Irrigation schemes along Ewaso Ngiro River</p> <p>Provision of certified / drought tolerant seeds</p> <p>Development of water harvesting structures</p>	<ul style="list-style-type: none"> • Rehabilitation of 250 Ha of small-scale irrigation schemes (Kakili, Gafarsa, Mulanda Nur, Malka Daka, Rapsu, Oldonyiro and Eresaboru) • 27 km of water canals constructed • Through support from partners • 36,000 farmers provided with certified drought-tolerant seeds and trained on good agricultural practices. • 2 water pan constructed • 1 earth dam, 1 sand dam and • 1 dam under construction 	<ul style="list-style-type: none"> • Irrigation schemes destroyed by floods • Infestation by Prosopis Species (mathenge tree) • Non-Completion of Irrigation schemes supported by National Irrigation Board (NIB) • Insufficient contingency funds • Lack of County: Agriculture Policy; Irrigation Policy; Disaster Risk Management Policy and its legislations • Poor supervision • Non-involvement of county government • Insecurity, lack of community support •
<p>Promote agriculture mechanization services</p>	<p>8 Tractors</p>	<ul style="list-style-type: none"> • 7 Tractors were procured • 1 tractor donated 	<ul style="list-style-type: none"> • Operationalization of Agricultural Mechanization Service (AMS) • Insufficient allocation for AMS operations
<p>Make fertilizer affordable to all farmers by 2015;</p>	<p>2512.3 MT of Subsidized fertilizer Provided to farmers</p>	<ul style="list-style-type: none"> • 3,000 farmers accessed subsidized fertilizers • Collaborations between the state Department of Agriculture, NCPB and County Government 	<ul style="list-style-type: none"> • Not decentralized such that farmers outside Isiolo sub-county couldn't access the fertilizers • Unscrupulous businesspeople bought the fertilizers illegally and repackaged them for resale • Lack of storage facilities outside Isiolo Sub-County • Lack of proper farmer identification procedure

Target / objectives MTP 1 & 2	Priority /Flagship item in CIDP and MPT 1&2	What was achievement	What did not work well
Reduce post-harvest loss by 70% by 2015;	3 of the agro-processing facilities developed.	<ul style="list-style-type: none"> Formed and trained 29 Tomato producer groups and linked them to input suppliers. 1 farmer group and 10 individual farmers are processing and selling tomato sauce and jam Involvement of community from the initial process which contributed to ownership 	<ul style="list-style-type: none"> Lack of DRM policy and legislation Socio-cultural behavior despite sensitization by various partners Pest infestation(<i>Tuta absoluta</i> and <i>fall armyworm</i>) Impact of drought Lack of entrepreneurial skills and funds to purchase processing equipment Lack of capacity to address the emerging pests' infestation No Agro-processing facilities developed
	12,000 farmers trained on post-harvest management		
	6 produce storage/markets facilities and stalls established		
	NRM, environment and social inclusion: increase awareness of technologies to improve soil fertility;		

FLAGSHIP PROJECTS MTP 2- AGRICULTURE SUB-SECTOR

Develop two irrigation schemes	Rehabilitation and expansion of existing irrigation schemes along Ewaso Ng'iro river (Rapsu and Malka daka irrigation schemes)	<ul style="list-style-type: none"> Rehabilitation and expansion of 250 Ha for small-scale irrigation schemes Malka Daka and Rapsu Support from partners 	<ul style="list-style-type: none"> irrigation schemes destroyed by floods during rains and insufficient water during drought the infestation of <i>Prosopis</i> spp species (mathenge) Non-Completion of Irrigation schemes supported by National Irrigation Board (NIB) Poor supervision Non-involvement of county government
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Table 2: Livestock Sub-Sector Review 2013 – 2017

Target / objectives MTP 1 & 2	Priority /Flagship item in CIDP and MPT 1&2	What was achievement	What did not work well
Provide quality animal health services	Vaccinations	<ul style="list-style-type: none"> Reduced disease outbreak of major diseases 	<ul style="list-style-type: none"> Could not cover the entire county The influx of livestock from other counties The extensive livestock production system
	Pest control	<ul style="list-style-type: none"> De-worming and ectoparasites controlled 	<ul style="list-style-type: none"> Insufficient de-wormers and ectoparasites Insufficient funds allocation for de-wormers and ectoparasites Overreliance on donors for the provision of de-wormers and ectoparasites by community
	Completion of export abattoir	<ul style="list-style-type: none"> structural development 70% complete 	<ul style="list-style-type: none"> Phased development Poor structural design Capital intensive project
	Improvement of cold chain storage capacity	<ul style="list-style-type: none"> Renovation of vaccine stores and installation of generator set 	<ul style="list-style-type: none"> The cold room was not constructed; not found viable Prohibitive operation costs
	Disease surveillance	<ul style="list-style-type: none"> Established a desk officer Recruited and trained community disease reporter Reporting platforms established Active surveillance done Improved collaboration with stakeholders NGO & partners Sero surveillance for PPR was conducted 	<ul style="list-style-type: none"> Active surveillance was not structured No prompt follow up No support of CDRs No structured engagement Feedback result from kabete lack
	Livestock identification and traceability	<ul style="list-style-type: none"> 20,000 cattle ear-tagged Livestock data traceability created 	<ul style="list-style-type: none"> Central database not created due to lack of capacity

Target / objectives MTP 1 & 2	Priority /Flagship item in CIDP and MPT 1&2	What was achievement	What did not work well
Provide quality assurance of livestock and livestock products	Meat inspections	<ul style="list-style-type: none"> · fair coverage of meat inspections; for the existing meat inspectors and slaughterhouses 	<ul style="list-style-type: none"> · coverage is inadequate due to understaffing and lack of slaughterhouses
	Improvement of veterinary infrastructure	<ul style="list-style-type: none"> · Establishment of a private poultry slaughterhouse with support from partners · 	<ul style="list-style-type: none"> · Meat inspection not done regularly · Home slaughter is prevalent · Demand for inspected poultry meat low due to low public awareness · Staff shortage
		<ul style="list-style-type: none"> · Equipping of functional laboratories at Isiolo and Kinna with support from partners 	<ul style="list-style-type: none"> · Services not fully utilized Staffing a challenge · Lack of transport for field visits · Shortage of reagents and equipment
		<ul style="list-style-type: none"> · Office renovations are done 	<ul style="list-style-type: none"> · Furnishings were left out
	Veterinary services regulation	<ul style="list-style-type: none"> · Inspection of veterinary input outlets Inspection · Licensing of, e.g., abattoirs, meat carriers and H/skin premises with support from KVB and police service 	<ul style="list-style-type: none"> · Drugs and agro-chemicals are sold everywhere · Structured enforcement not done · Thin staff on the ground
Meat and milk hygiene	Establishment of bulking centres and processing plant and training of milk actors jointly with stakeholders	<ul style="list-style-type: none"> · Follow up mechanism · poor lack of staff · Weak quality slaughterhouse structures · Standards of hygiene at slaughterhouses poor · Camel milk not recognized in Kenya law · Political interference · Conflicts of roles(county regulating itself) · Poor milk handling · Scarcity of water · Poor quality hygiene at the producer level · No policies in place · Camels not recognized as an emerging livestock 	

Target / objectives MTP 1 & 2	Priority /Flagship item in CIDP and MPT 1&2	What was achievement	What did not work well
Flagship Projects MTP 2 / CIDP 1: for Sub-Sectors 2013 – 2017			
Establishment of a livestock disease screening area “(DFZ)”	One DFZ established in Burat ward	<ul style="list-style-type: none"> · Identification of the area · Rehabilitation of Mulango spray race and cattle crush · A cattle water trough constructed · 2 livestock holding pens constructed 	<ul style="list-style-type: none"> · Surveying of the area was adequately done · Fencing to demarcate the area not done · More paddocks not created · Water structures not sufficient · Land ownership disputes · Encroachment into the holding ground · Capital intensive project
Add value to livestock products	Isiolo abattoir for increased commercial livestock off-take	<ul style="list-style-type: none"> · Structures 70% complete · Business modules developed but under discussion · Engagement of possible investors in progress · Existence of political goodwill · increased stakeholder consultations and collaboration 	<ul style="list-style-type: none"> · Equipment not purchased · Structures not completed · The operational model still not agreed upon · Abattoir not operational · Changes in structural designs · Conflicts of interests

Target / objectives MTP 1 & 2	Priority /Flagship item in CIDP and MPT 1&2	What was achievement	What did not work well
Livestock Production:			
Increase livestock production and productivity for improved pastoral livelihoods and food security	value addition of livestock and livestock products	<ul style="list-style-type: none"> • 2 camel milk bulking and cold chain systems for women group,2 camel milk processing plants,2 dairy processing plant • 2meat processing plants and cold chain systems for women group • 2 Poultry slaughterhouse constructed • 2 of cold chain systems and refrigerated vehicle to women groups • Pastoralists capacity built on animal husbandry, conflict resolution • 28 cooperative targeted for value chain development by county government and development partners formed 	<ul style="list-style-type: none"> • Camel processing never took off • One dairy processing plant never took off • Poor infrastructure • Negligence by county and national government • Poverty and dependency syndrome • Poor Market access • The expansiveness of the county • long distances to collection plants • inadequate and poor transportation equipment • Few and poorly managed cooperatives • inadequate legal framework • Poor consumer knowledge of value-added products
	construction of value addition facilities	<ul style="list-style-type: none"> • 2 feedlots established and 1 Feed processing plant constructed for existing groups, e.g., women group and community-based organizations 	<ul style="list-style-type: none"> • Uneven distribution of the facilities (centralized in Isiolo town) • Limited access to basic amenities • Beneficiaries were targeted based on their startup capital • Few facilities
	Promotion of livestock breeds improvement initiatives	<ul style="list-style-type: none"> • Improved poultry given to 10 groups with the support of partners • 50 improved dairy breeds (Toggenburg, Saanen, German alpine) distributed with the support of partners 	<ul style="list-style-type: none"> • Wrong targeting of the beneficiaries • The poor and the vulnerable sometimes cannot handle the improved breeds

Target / objectives MTP 1 & 2	Priority /Flagship item in CIDP and MPT 1&2	What was achievement	What did not work well
	Pastoralists and community training on livestock best practices	<ul style="list-style-type: none"> • 100 training sessions conducted • with support of partners 	<ul style="list-style-type: none"> • Limited coverage • Vastness of the county • Dependency syndrome • Poor infrastructure and remoteness • Inadequate funds and other logistics
Promote livestock and livestock products marketing	Development of value addition facilities	<ul style="list-style-type: none"> • 2 feedlots established • • 2 milk processing plants established • • 1 Poultry slaughterhouse established • 1 Feed processing plant established • • Existing groups, e.g., women group and community-based organizations 	<ul style="list-style-type: none"> • Uneven distribution of the facilities(centralized in Isiolo town) • Poor access to basic amenities • Beneficiaries were targeted based on their startup capital • Few facilities
	Construction of modern livestock markets	<ul style="list-style-type: none"> • 10 modern livestock market constructed with the support of partners 	<ul style="list-style-type: none"> • Wrong sitting of some of the markets • Inadequate consultation and political interference
	Strengthening of livestock market management institutions	<ul style="list-style-type: none"> • 9 livestock market committees (LMAs trained severally with support of partners) 	<ul style="list-style-type: none"> • Some LMAs are dormant • Lack of Operationalization of sales yard bill and regulations • Internal politics and conflicts

Target / objectives MTP 1 & 2	Priority /Flagship item in CIDP and MPT 1&2	What was achievement	What did not work well
Improve rangeland management for sustainable use of rangeland resources	Ha of Rangeland reseeded	<ul style="list-style-type: none"> 300 Ha were reseeded using Cenchrus ciliaris and Eragrostis superba with support of partners 	<ul style="list-style-type: none"> Poor management of the pasture sites Inadequate rains/ droughts -Interference from wildlife and livestock (utilization before maturity)
	Ha of an invasive plant (Acacia reficiens) control Oldonyiro	<ul style="list-style-type: none"> 200 Ha cleared with Support from FAO and community 	<ul style="list-style-type: none"> Small area cleared
	Strengthening of rangeland management institution	<ul style="list-style-type: none"> Grazing committee revived in seven wards With support of partners 	<ul style="list-style-type: none"> Sub-county structure still missing
		<ul style="list-style-type: none"> Resource maps for four wards developed with the support of partners 	<ul style="list-style-type: none"> Resource maps for other wards missing
	Development of policies regulations and legislations	<p>Policies developed with the support of partners and community participation:</p> <ul style="list-style-type: none"> Water Rangeland management, Livestock and Livestock strategy DRR Natural resources, <p>Bills Developed</p> <ul style="list-style-type: none"> Sales Yard Act and regulation Rangeland management Bill 	<ul style="list-style-type: none"> Slow approval and Implementation of policies and legislations Lack of political goodwill Inadequate financial resources
Promotion of pasture production and conservation	<ul style="list-style-type: none"> 6 Pasture plots developed 200 Ha of land put under pasture All with the support of partners 	<ul style="list-style-type: none"> Poor management of pasture sites Drought Group conflicts Inadequate water Interference from livestock and wildlife The negative attitude among communities towards pasture production 	

Target / objectives MTP 1 & 2	Priority /Flagship item in CIDP and MPT 1&2	What was achievement	What did not work well
		<ul style="list-style-type: none"> • 5 hay shed developed • with support of partners Kina, Muchuro, Godda, Feedlot 	<ul style="list-style-type: none"> • Wrong sitting • No promotion of pasture production • Lack of community ownership • Inadequate involvement of communities and stakeholders
		<ul style="list-style-type: none"> • 5 Community/groups mobilized • with support of partners 	<ul style="list-style-type: none"> • Lack of inclusivity in the entire process • Conflicting interest and priority differences
LIVESTOCK PRODUCTION SUB SECTOR FLAGSHIP PROJECT			
Establish pasture farms and strategic livestock feed reserves	<p>Land identification and surveying of pasture farms of a minimum of 100 Ha in each of 5 wards</p> <p>Provision of grass seeds for planting</p> <ul style="list-style-type: none"> -Awareness creation and capacity-building -Handing over to the community 	<ul style="list-style-type: none"> • demo pasture plots established • training on pasture production conducted to identified community groups • support from partners and county allocation 	<ul style="list-style-type: none"> • Community attitude that believes in natural pasture • Poor management of pasture plots • Low coverage • Past failures in performance of pasture plots • Lack of prioritization of projects
	land identification and survey of hay/feeds stores	<ul style="list-style-type: none"> • Establishment of 5 hay sheds • Support from partners and county allocation 	<ul style="list-style-type: none"> • No pasture farming • Poor management of pasture plots leading to lack of pasture production • Lack of prioritization of projects
Complete and make operational feedlot at Burat	survey of a feedlot in order to identify the locations of facilities(paddocks, watering and feeding troughs, Road and water reticulation offices	<ul style="list-style-type: none"> • Some paddocks, feeding and watering troughs, borehole, hay shed, perimeter fence, livestock observation shed and crushes established • Support from the state department of livestock 	<ul style="list-style-type: none"> • stalling of the projects, • Lack of prioritization of projects

Table 3: Fisheries Sub- Sector Review 2013 – 2017

Target / objectives MTP 1 & 2	Priority /Flagship item in CIDP and MPT 1&2	What was achieved	What did not work well
Increase fish production for food security and improved income	improvement of Isiolo fish fingerlings bulking unit	<ul style="list-style-type: none"> installed solar pump 8 ponds rehabilitated provision of fish feeds to farmers Support from development partners. 	<ul style="list-style-type: none"> The hatchery was not operationalized.
	Establishment of fish outlet and rehabilitation of concrete fish-holding ponds	<ul style="list-style-type: none"> constructed office and fish kiosk at Merti sub-county support from development partners 	<ul style="list-style-type: none"> The concrete fish-holding ponds were not rehabilitated
Increase fish marketing and value addition for fish and fish products	<p>conducted a rapid assessment of the fish value chain</p> <p>Capacity-building of fish farmers and fishmongers.</p> <p>Conduct eat more fish campaign</p>	<ul style="list-style-type: none"> reports presented to the chief officer and technical team and recommendation being implemented support from development partners capacity-building was conducted 	<ul style="list-style-type: none"> The assessment did not cover the entire county Eat more fish campaign was not conducted.

2.3 Some Enablers

Livestock Economy: Isiolo is the gateway to the abundant livestock population from Upper Eastern and North-Eastern parts of Kenya. The proposed modern abattoir and numerous livestock markets are expected to revitalize the neglected livestock sector. Once complete and fully operational these facilities will increase sales and slaughter livestock, add value to livestock and livestock products and generate income and employment for the local population.

Isiolo Airport: is currently operational for local travels; it is envisaged to be fully operational to International Airport. This is a major infrastructure that will accelerate the movements of goods and services between Isiolo and other parts of the country. As one of the resort cities under Kenya Vision 2030, the Airport will increase international tourism arrivals; local communities will be set to benefit from increased trade and employment opportunities, as well as showcasing their rich cultural and traditional artifacts and eco-tourism trade.

LAPSET Corridor: Once complete, it is expected to be one of the driving engines of development in the county. The corridor that includes an oil pipeline, a highway and railway line will pass through Garba Tulla, Kinna, Ngar Mara, Burat and Oldonyiro Wards. Diversification of livelihood would be most important since there would be the creation of substantial job opportunities directly related to the corridor development. Agriculture and livestock sub-sectors stand to gain in a big way including access to the new Lamu Port.

Resort City; The Isiolo Resort City is premised on rich biodiversity and habitation to rare and endangered wildlife species. It will leverage on 5 National Parks / Reserves and community conservancies within the vicinity of the project site. The City, therefore, presents one of the most unique tourist menu in the country that can be exploited and harnessed to create a positive economic impact on the local population.

Network Connectivity: The County has limited telephone connections and around 8% network coverage. Increased mobile phone network coverage and internet connectivity will improve both economic and social activities. Mobile money transfers from livestock markets and horticulture produces has reduced road/highway banditry and expanded the volumes of goods traded, respectively.

Reviewed Sector Targets under CIDP II: is a considerable upgrade from CIDP-I; The Review Chapter of the CIDP-1 and the listing of achievements in the Agricultural Sector provides the evidential base for restructuring the current 5-Year Phase of the Sector Plan. Many lessons about what must change have been learnt as listed below.

Good rapport from stakeholders, partners and collaborators: This already exists in the county. What is urgently needed is a coordinated delivery function.

2.4 Challenges of ASP implementation:

Numerous challenges were experienced during the execution of MPT II (CIDP-1), below are the highlights of reasons for what did not work well:

- Lack of clear targets for the achievements of Kenya Vision 2030
- Agriculture sector extension service not functional due to lack of funds allocations; Shortage of funds has an impact on equipment, vehicles, staff, office accommodation
- Sector plans were not synchronized with funds disbursements

- Inadequate supervision and lack of M&E plan
- Shortage of funds has impacted on the completion of flagship projects like Isiolo abattoir, feedlots and livestock Disease Free Zone; the flagship projects are meant to spur economic growth, improve household income and create employment for youth and women
- Understaffing and or lack of technical personnel especially competent professional staff to handle disease control, while common livestock diseases are under control, viral diseases are beset with a major challenge as the nearest labs that deal with these diseases are in Karatina and Nairobi
- Livestock population not known to enable planning and targeting of strategies
- Camel milk not categorized as a dairy product as camels are recognized as emerging livestock under draconian Kenyan laws
- Pending livestock and livestock product bill in parliament may clear the air

2.5 Lessons learnt

- Involvement of partner organizations was seen as the main contributor to the achievements of planned targets in 2013 – 2017
- The sector mandate and vision, as elaborated in the CIDP 1, are not clear on the delivery of Vision 2030 targets
- The development of sector priorities in the CIDP 1 was developed through stakeholder consultative processes
- The livestock sub-sector is the main economic driver of food and nutrition security with 80% of the county population's relying on livestock and livestock products for their livelihood
- The remaining 20% of the population is dependent on crop farming and livestock for their livelihood; area under crop production is being expanded through irrigation along Waso Nyiro River and rain-fed cultivation

CHAPTER

3

SITUATION ANALYSIS

SITUATION ANALYSIS

3.1 Agriculture Sub-sector

A large portion of the county is arid to very arid and cannot support meaningful crop production. About 5% of the county landmass is considered arable, most of it being irrigable riverine areas of Ewaso Ngiro North and other smaller rivers with sources in Aberdares ranges and Mount Kenya. Low productions of food crops contribute significantly to food and nutrition insecurity.

The major constraint to agriculture production and productivity are low crop hectareage, pests and diseases, high post-harvest losses, inappropriate production technologies, limited value addition to produce and lack of supportive policies (Table 4). Agriculture production, however, has varied over the years due to the erratic rainfall pattern occasioned by climate change.

Table 4: Agriculture and irrigation Strategic Issue

Strategic Issues		Strategic Objective
Low crop production and productivity	Inadequate water for crop production	<ul style="list-style-type: none"> Promote water and soil conservation appropriate technologies for optimum crop production
	An infestation of crop pests and diseases	<ul style="list-style-type: none"> Capacity-building on integrated pest management IPM
	High post-harvest losses	<ul style="list-style-type: none"> Capacity-building on post-harvest losses
	Inaccessibility of farm inputs	<ul style="list-style-type: none"> Provide subsidized farm inputs (certified seeds, fertilizers, pesticides, tools and equipment targeting resource-poor people.
	The high cost of fossil fuel to power irrigation infrastructures	<ul style="list-style-type: none"> Support and adopt green energy (solar, wind)
	Lack of supportive policies and legislation at the county level	<ul style="list-style-type: none"> Develop county agriculture and irrigation policies.
	Inadequate technical extension services providers	<ul style="list-style-type: none"> Improve institutional and capacity for efficient, effective service delivery, in-service recruitment training, refresher courses and promotion
	Inappropriate production technologies	<ul style="list-style-type: none"> Adoption of appropriate technologies / conservation agriculture.
	Environment degradation	<ul style="list-style-type: none"> Promote agro-forestry, energy saving devices .
	Low adoption of technologies	<ul style="list-style-type: none"> Sensitize and train farmers on technologies, innovations, management practices (TIMPS)
	Social-cultural behaviors	<ul style="list-style-type: none"> Capacity build on behavior change
	Resource-based conflict	<ul style="list-style-type: none"> Peace and conflict resolutions, community negotiations Develop appropriate policies and regulations
	Climate change issues (drought and floods)	<ul style="list-style-type: none"> Promote climate-smart technologies and innovations Introduce crop insurance
	Poor farming methods	<ul style="list-style-type: none"> Promote good agriculture practices
	Low crop acreage	<ul style="list-style-type: none"> Provide subsidized agriculture mechanization services Expand area under crop production

Strategic Issues		Strategic Objective
poor market access and market linkages	Lack of policies and legislation to inform crop marketing	• Develop relevant policies and legislations
	Lack of adequate marketing information and linkages	• Increase farmers awareness of key market information • Enhance marketing and information systems • Practice contractual farming (agreements and MOUs)
	Lack of marketing groups	• Promote marketing groups such as commercial village model and cooperatives.
	Limited agro-processing and value addition of farm produce	• Promote agro-processing and value addition technologies of farm produce and off-farm products
	Inadequate entrepreneurship skills	• Enhance entrepreneurship
	High poverty levels	• Introduce Community food security initiative grants targeting resource-poor.
	The poor feeder road network	• Improve feeder road infrastructure
	Inadequate transportation facilities for fresh produce.	• Promote organized and appropriate transport.
	Lack of market support services, eg. Financial,	• Linkage to relevant financial services providers
Poor Food and nutrition security	Improper utilization of available foods. Poor diet diversification.	• Promotion of agri-nutrition interventions

3.2 Livestock sub-sector

Livestock keeping is the mainstay of Isiolo County's economy. Approximately 80 percent of the county's inhabitants derive their livelihoods from livestock enterprise, and close to 70 percent of the rural labour force is employed in the livestock sub-sector. The County is endowed with substantial livestock resources. The department of livestock production estimates their livestock resources as 253,244 cattle, 586,119 goats, 531,355 sheep, 45,309 camels, 25,310 donkeys, 44,495 chickens, 600 pigs, 1,200 rabbits, 3,300 beehives. The sector is equally economically significant with a capital value of Kshs. 7.5 billion and product value estimated at over Kshs. 1.5 billion (Annex 3) but also under resources¹⁰.

There are seven major livestock markets in the county, namely Isiolo town, Garbatulla (Belgesh, Kinna), Duse, Modogashe, Merti, Eskot and Oldonyiro. The main livestock traded are cattle, goats, sheep and camels. Buyers come from Nairobi, Meru, and as far as the coastal region of Kenya.

The commercialization of livestock products like camel milk is gaining economic importance through value addition, installation of cooling plants, deep freezers and refrigerated transport systems. The milk is sourced from producers across the county and shipped to the main market in Nairobi. The county also has the potential to produce huge amounts of honey with improved production and value addition through the construction and equipping of a honey processing plant.

However, the county's potential for livestock and livestock products has not been exploited. The main barriers include poor governance of the rangelands, largely due to the absence of an appropriate legal framework for land tenure, livestock disease, poorly organized market for livestock and livestock products, a weak framework for disaster response, and inappropriate and inadequate systems to provide social and financial services (Table 5).

Table 5: Livestock Production Strategic Issues

Strategic Issues	Strategic Objective
Low livestock production and productivity Poor rangeland governance leading to low productivity and resilience	Empower customary rangeland management institutions for improved rangeland use planning and enforcement of regulations to enhance sustainability Legally protect rangeland from alienation and fragmentation Enhance preparedness and response to drought and climate change
Poor water governance that leads to unsustainable rangeland management	Develop and integrated water resource management to support pastoralism
Lack of appropriate investment in pastoral production and productivity strategies	Promote production strategies that integrate climate variability and unpredictability
Degraded rangelands and poorly managed	Rangelands rehabilitations and management
Livestock influx	Regulate and control grazing
Resource-based conflict	Peace and conflict resolutions and community negotiations Clear border Mapping
Limited value addition of livestock products	Enhanced value addition of livestock and Livestock products
Incidences of diseases	Disease control and treatment
Inadequate extension services	Enhance extension services
Inappropriate production technologies	Adoption of appropriate technologies
Poor livestock breeding practices	Introduction of AI services Breeding improvement programmes
Low adoption of commercial pastoralism	Enhance commercialization of livestock keeping

Strategic Issues		Strategic Objective
The inadequate market for livestock and livestock products	Poor livestock market infrastructure	Improve livestock infrastructures
	Lack of policies and legislation to spearhead livestock marketing	Review and improve existing policies governing livestock marketing systems with respect to the needs of the county Implementation of relevant policies and legislations
	Lack of adequate marketing information and linkages	Enhance marketing and information systems
	Poor management and organization of livestock markets	Strengthening of the co-management model Facilitate the formation of cooperative societies, livestock trader associations and livestock producer groups
	Limited facilities for value addition of livestock- products and by-products	Enhance value addition of livestock and livestock and by-products Establish feedlots for livestock fattening in strategic places in the county Create facilities for local processing of livestock products and by-products for value addition
	Poor road network	Construct and improve the road infrastructure and stock routes for improved accessibility to markets and enhanced security
	Insecurity	Strengthening county and inter-county peace and conflict resolution mechanism
	Lack of market support services, eg. Financial, Poor policy environment	Linkage to relevant financial services providers
Veterinary Services Strategic Issues		
	Weak management and control of animal diseases, pests and vectors	Strengthen appropriate and quality animal health and production services

Strategic Issues		Strategic Objective
Inadequate Livestock diseases control	Influxes from neighbouring counties	Regional cooperation and synchronization of disease prevention and control activities
	Inadequate veterinary capacity and institutional infrastructures	Provision of adequate veterinary capacity and institutional structures
	Inadequate skilled personnel	Recruitment and training of technical personnel
	Poor distribution of private veterinary services, livestock inputs, and enterprises	Promote the participation of and partnership with the private sector in the delivery of services and value chain development.
	Inadequate funding	Increase budgetary allocation
	Unstructured disease prevention regime	Develop routine disease control regime
	Ethnic conflicts	Foster county and inter-county peace and conflict resolution mechanism
	Inadequate animal health extension services	Develop appropriate, efficient and effective livestock extension services
	Drug resistance due to misuse	Create public awareness and strengthen the regulatory mechanism
	Livestock migration in search of water and pasture	Diversification of livestock production practices and Organized grazing systems
	Dependency on handout	Introduce cost-sharing
Non-practice of commercial livestock keeping	commercialization of livestock keeping	

Strategic Issues		Strategic Objective
Poor regulatory services along livestock product value chain	Misuse of drugs by livestock keepers	Strengthening regulatory services to Enhance the quality and safety of animal products Public awareness and capacity-building
	Inadequate skilled personnel	Recruitment and training of technical personnel
	lack of appropriate technologies to determine residue levels	Develop appropriate TIMPs
	Inadequate slaughter facilities	Expansion of slaughter facilities under public-private partnership
	Low public awareness of the dangers of drugs	sensitization of the public on the proper use of drugs and chemicals on food animals
	Substandard products handling /slaughter facilities	Upgrading of slaughterhouses
	vastness and remoteness of grazing fields	Infrastructure development
	Extensive livestock production Systems	Diversification of livestock production systems and organized grazing
	Inadequate logistical support	Increase budgetary allocation

3.3 Fisheries sub-sector Strategic issues

There are two types of fisheries practiced in Isiolo county, i.e., aquaculture and riverine line capture fisheries. In aquaculture, the commonly captured fish are tilapia and African catfish. The production system is semi-intensive and mainly for subsistence. For river line capture fisheries, the main activity is along River Ewaso ngiro. The main types of fish caught are clarias, common carp, lungfish, tilapia, barbus and labeo.

Challenges facing the fisheries sub-sector are underdeveloped fisheries infrastructure, inappropriate production technologies, high cost of transportation from producing areas to the end market, inadequate market information and linkage, poor quality assurance, inadequate extension services weak, including weak policies and legal framework (Table 6).

Table 6: Fisheries sub-sector Strategic issues

Strategic Issues		Strategic Objective
Low Productivity and output	Underdeveloped fisheries infrastructure Inappropriate production technologies	<ul style="list-style-type: none"> Increased fisheries productivity Adoption of new production technologies Introduction of superior fish breeds Promotion of integrated production systems in fisheries sector through capacity-building Production of certified fish seeds Develop standards for fish feeds Establish Fish Seed Certification Units (FSCUs).
Poor access to markets	The high cost of transportation from source areas to the end market Inadequate market information and linkages Inadequate primary and secondary markets	<ul style="list-style-type: none"> Provision of a refrigerated motor vehicle and specialized hauling equipment Linking the producers to the market Establish cottage fish processing and storage plants Establish fish market centres within the livestock market infrastructures
Weak institutional capacity	Inadequate skilled personnel Inadequate extension services	<ul style="list-style-type: none"> Capacity build the technical staff Targeted Recruitment and training of skilled professional staff Grassroots organizations supported Extension packages developed
Weak monitoring and evaluation framework	Lack of M&E framework	<ul style="list-style-type: none"> Introduce M&E framework
Inadequate information technology	lack of ICT systems and infrastructure	<ul style="list-style-type: none"> Provision of ICT infrastructure
Weak policy and legal framework in fisheries sub-sector	Lack of Fisheries policies and legislations in the county	<ul style="list-style-type: none"> Develop fisheries policies(strategic plan, fisheries policy, regulations and guidelines)

3.8: Agricultural Sector: SCOT Analysis



STRENGTHS

1. Constitutional mandate/devolved governance
2. Support from stakeholders /partners / collaborators
3. Political goodwill
4. Knowledgeable technical personnel



CHALLENGES

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Inadequate funding 2. Poor infrastructure 3. Low staffing levels 4. Failure to further devolve resources to sub-counties 5. Utilization of county resources from the same basket | <ol style="list-style-type: none"> 6. Invasive species, e.g., Prosopis juliflora 7. Unavailability of certified seeds 8. Inadequate collaboration between government and private sectors. 9. Conflict of interest |
|---|---|



OPPORTUNITIES

1. High potentials for irrigation development
2. High donor investment interest in the ASAL region
3. Infrastructure development LAPSET, Isiolo Resort City ad Airport
4. International abattoir
5. Existence of advanced weather tolerant animal breeds
6. The flow of Ewaso Nyiro river across Isiolo county

THREAT

1. Climate change
2. Frequent flooding
3. Frequent drought
4. Insecurity and community conflicts
5. Failure to devolve resource a treat to devolution
6. Extinction of palatable plants
7. Use of chemical that flows back to water bodies affecting fish
8. Fragmentation of rangelands



CHAPTER

4

**REVISED
IMPLEMENTATION
TARGETS 2018-2027**

REVISED IMPLEMENTATION TARGETS 2018-2027

4.1 Agriculture, Livestock Production, Veterinary Services & Fisheries

The sector comprises of Agriculture, Livestock and Fisheries; the sub-sectors are considered as the key drivers for the county's economic growth and critical for the attainment of the 10 percent economic growth rate envisaged under the Kenya Vision 2030 and successive Medium Term Plans. It directly contributes to the county's economy through enhancing food security, income generation, employment and wealth creation through enhancing large scale production, boosting smallholder productivity and value chain development;

Vision: Food secure and wealthy county anchored on an innovative, commercially oriented and competitive Agriculture Sector.

Mission: To improve livelihoods of Kenyans through the promotion of competitive agriculture, sustainable livestock and fisheries development, growth of a viable cooperatives sub-sector, creation of an enabling environment and sustainable management of land resources.

Goal: To attain food, feed and nutrition security and income through increased production and value addition in livestock, agriculture and fisheries investments in Isiolo

Objectives

The core objectives of the sector plan are to:

- » Enhance food and nutrition security for the people of Isiolo County, a population that is growing at 3.7% per annum
- » Create a meaningful employment base for the majority of people living in the rural area with a special focus on women and the youth

- » Transform the Agriculture Sector into an income-generating, poverty alleviating sector of the county economy
- » Enhance the resilience of the communities to the frequent droughts and other climatic shocks experienced in the county

The sector strategies and targets were re-focused and harmonized with CIDP 2 contents for the development of ASP 2 for the period 2018-2022.

4.2 Food demand

Table 7 shows the capacity of the county to produce food and cash crop to meet the food demand of the growing population. Included in the projected food demand are increased crop acreage under irrigation, expanded food varieties like pulses, oils, vegetable and fruits. Food demand projections assume two successful cropping seasons per year aimed at achieving 50% of food crop demand. Food demand estimations are based on WFP food requirements at 400 g of cereals, 60 g of pulses and 35 g of oils per person per day for the projected populations of over 298,864 persons by 2022.

Table 7: Food production Targets for crop agriculture sub-sector

ANALYSIS OF FOOD DEMAND						
Food demands	Population projections 2018	Population growth rate (%)	Food Requirements in MT per year			
			2019	2020	2021	2022
	158,716	3.7	268,002	277,918	288,201	2022
Cereals grams/day/person	400		39,128	42,077	43,634	298,864
Pulses grams/day/person	60		5,869	6,312	6,545	52,260
Oils grams/day/person	35		3,550	3,682	3,818	7,839
Food production area needed to satisfy food demand						
Food crops production	MT/Ha	2018	2019	2020	2021	2022
Cereals MT/Ha (2 seasons)	3.6		10,860	11,680	12,121	14,131
Pulses MT/Ha (2 seasons)	3.6		1,630	1,753	1,818	
Oils crops MT/Ha (2 seasons)	0		587	631	655	784
Simsim/sunflower	0		355	368	382	457
Current Area under Cereals (Ha)	1.8		300	400	500	600
Current Area under Pulses (Ha)	1.3		150	200	250	300
Current Area under Oil (Ha)	0		0	0	0	0

Priority food Crops

Food & Cash Crops	
Cereals	Maize, Sorghum, Nerica rice,
Pulses	Beans, Green Grams, Cowpeas, Dolics Lablab
Oils Crops	Simsim, Sunflower, soya beans
Vegetables	Kales, tomatoes, onions, water melons
Fruit trees	Paw paw, avocados, citrus, mangoes, guava

Key targets include increasing major food production by the year 2022. Specifically, the annual production of cereals (maize and sorghum) will be increased from the current 10,220 MT to 26,797 MT; additional production of pulses (green grams and cowpeas) will be increased from 1,043 MT to 4,020 MT and oils will additionally be increased from 434 MT and 2,345 MT.

Desirable Attributes mainstreamed into the sub-sector (Table 8)

- Crop productivity improvement
- Agro-processing, value addition and marketing
- Climate change adaptation
- Extension and advisory services
- Domestication of relevant Policies and Acts

Table 8: Food Production Targets for Agriculture Sub-Sector 2018 -2022 and Beyond

Targets MTP 1,2 & 3	Priority / Flagships items in CIDP MPT 1,2&3	Baseline	Targets for MTP 3: 2018 – 2022 (50% Food Secure by 2022)	Targets for MTP 4: 2023 -2027 (60% Food secure by 2027)	Targets for MTP 5: 2028 – 2032 (70% Food secure by 2032)
			By Dec 2022:	By Dec 2027:	By Dec 2032:
<ul style="list-style-type: none"> • To improve food security by 30% by 2022 • To improve food security by 50% by 2022 • To reduce the official poverty level to less than 50% by 2022 • To create employment • To improve adoption drought mitigation measure to 80% by year 202 	<p>2,500 farmers receive agricultural training and extension services and support for:</p> <ul style="list-style-type: none"> • Field crops production (Cereals, oil and pulses) • Water harvesting and irrigation development • Mechanization services, adoption of drought-tolerant crop varieties, TIMPs • Fruits and Vegetable production • Processing and value addition activities 	<ul style="list-style-type: none"> • Maize/sorghum 10,220 MT • Pulses green gram,cowpeas 1,043 MT • Oils crops 434 MT • Vegetables (tomatoes) 1,097 MT • 1,500 farmers accessing subsidized fertilizers & certified seeds 	<p>Maize/sorghum 21,817 MT</p> <p>Pulses green gram, cowpeas 3,273 MT</p> <p>Oils crops 1,909 MT</p> <p>Vegetables (tomatoes) 5,454 MT</p> <p>2,250 farmers</p>	<p>Maize/sorghum: 31,356 MT</p> <p>Pulses 4,703 MT</p> <p>Oils crops 2,744 MT</p> <p>Vegetables (tomatoes) 7,839 MT</p> <p>3,600 farmers</p>	<p>Maize/sorghum: 43,869 MT</p> <p>Pulses 6,580 MT</p> <p>Oils crops 3,839 MT</p> <p>Vegetables (tomatoes) 10,967 MT</p> <p>6,100 farmers</p>
To improve crop production	Production of maize increase	219 MT	329 MT of maize produced annually	525 MT of maize produced annually	894 MT of maize produced annually
	Production of field crop in the county increased	243 MT annually	365 MT of field crops produced annually	583 MT of field crops produced annually	991 MT of field crops produced annually
	Adoption of certified seed Build resilience to climate risks	1, 200 farmers adopting (Certified seeds and climate-smart TIMPs)	1, 800 farmers adopting TIMPs	2,880 farmers adopting TIMPs	4,896 farmers adopting TIMPs

Targets MTP 1,2 & 3	Priority / Flagships items in CIDP MPT 1,2&3	Baseline	Targets for MTP 3: 2018 – 2022 (50% Food Secure by 2022)	Targets for MTP 4: 2023 -2027 (60% Food secure by 2027)	Targets for MTP 5: 2028 – 2032 (70% Food secure by 2032)
			By Dec 2022:	By Dec 2027:	By Dec 2032:
To reduce operation and maintenance costs of irrigation schemes	Promote access to renewable energies (solar & wind)	Cost of running irrigation schemes per acre reduced by 70%	50% reduction of cost of running irrigation schemes per acre	25% cost reduction	20% cost reduction
To promote drought-tolerant crop varieties	Establish demo farms/ farmer field schools Promote diversified drought-tolerant crop varieties	500 farmers using drought-tolerant seed	750 farmers using drought-tolerant seed	1,200 farmers using drought-tolerant seed	2,040 farmers using drought-tolerant seed
To increase the total area under horticultural crops	Value chain development of horticultural crops (bulb onions, tomatoes, kales) Reduction of post-harvest losses	20,692 Mt produced annually for market and own consumption	31,038 Mt produced annually for market and own consumption	49,660 MT produced annually	84,423 MT produced annually
		444 million gross annual revenue from the sale horticulture crops	622 million	995 million	1,691 million
		Post-harvest loses reduced to 70%	Post-harvest loses reduced to 35%	Post-harvest loses reduced to 25%	Post-harvest loses reduced to 20%
The promotion of agri-nutrition among the vulnerable groups	Diversify household nutritional quality of consumed food	50 vulnerable groups reached.	75 vulnerable groups reached.	120 groups	204 groups
To improve farm mechanization services	Increase area (Ha) under crop	600 farmers using agriculture mechanization services	900 farmers	1,440 farmers	2,448 farmers

Targets MTP 1,2 & 3	Priority / Flagships items in CIDP MPT 1,2&3	Baseline	Targets for MTP 3: 2018 - 2022 (50% Food Secure by 2022)	Targets for MTP 4: 2023 -2027 (60% Food secure by 2027)	Targets for MTP 5: 2028 - 2032 (70% Food secure by 2032)
			By Dec 2022:	By Dec 2027:	By Dec 2032:
To promote commercialization of agriculture and access to markets for enhanced income	Increase household income through agribusiness development	750 farmers accessing ready markets with pre-agreed and sustainable prices	1125 farmers	1,800 farmers	3,060 farmers
		450 farmers accessing and utilizing farm credit	650 farmers accessing and using farm credit	965 farmers	1,500 farmers
		30% farmers getting income from agri-business	90% income from agribusiness	96% income from agribusiness	12% income from agribusiness
To pilots on specific crop productions	Promote New Rice for Africa (NERICA) – names of the areas?	The pilot growing of nerica rice 5 plot x 1 Ha (est. 1,000 kg/ha)	15 MT of nerica rice per year	24 MT of nerica rice per year	40 Mt of nerica rice per year
	Promote oil crops(sunflower, soya bean and simsim) names of the areas?	Pilot plots growing sunflower 2 pilot x 1 Ha (est 2.5 MT/ Ha)	15 MT of sunflower per year	24 MT of sunflower per year	40 MT of sunflower per year
		Pilot plots growing Soya Beans 2 pilot x 1 Ha (est 2.0 MT/ Ha)	12 MT of soya beans per year	19 MT of soya beans per year	33 MT of soya beans per year
		Pilot plots growing Simsim 2 pilot x 1 Ha (est 700kg/ Ha)	4.2 MT of sim sim per year	6.7 MT of sim sim per year	11.4 MT of sim sim per year

Targets MTP 1,2 & 3	Priority / Flagships items in CIDP MPT 1,2&3	Baseline	Targets for MTP 3: 2018 - 2022 (50% Food Secure by 2022)	Targets for MTP 4: 2023 -2027 (60% Food secure by 2027)	Targets for MTP 5: 2028 - 2032 (70% Food secure by 2032)
			By Dec 2022:	By Dec 2027:	By Dec 2032:
Improve institutional and capacity for efficient, effective service delivery,	Enhanced capacity development of staff	# technical staff recruited Establishment of M&E # office blocks constructed # vehicles & motorcycles purchased			
Review and alignment of agriculture laws and regulations					
FLAGSHIP PROJECTS, MTP 1,2&3 - AGRICULTURE SUB-SECTOR					
To increase the total area under food crop production	Develop new schemes and rehabilitate existing irrigation schemes along Ewaso Niro River (in Kakili, Gafarsa, Mnanda Noor, Malkadaka, Rapsu, Oldonyiro, Eresaboru and Qubi Qalo)	1,497 Ha area under irrigation	2,246 Ha area under irrigation	3,593 Ha	6,108 Ha

4.4 Livestock Production Sub-Sector

Livestock production program will aim at promoting food and nutrition security and income generation by focusing on meat, milk, poultry and honey production. This will be achieved through livestock disease control, breed improvement, establishment of AI station, livestock market infrastructure development, increased sales of livestock, an increased area under fodder production establishment of feed reserves. Other interventions include livestock and livestock product value chain development (table 9)

The livestock sub-sector is the main socio-economic activity in Isiolo County. Desirable Attributes mainstreamed into the sub-sector (Table 9 & Annex 1)

- Livestock productivity improvement
- Livestock health improvement
- Livestock and livestock product value addition and market access
- Livestock extension services improvement
- Domestication of relevant policies and legislations

Table 9: Activities and Delivery Targets for the Livestock Sub-Sector 2018-2022 and beyond

Targets MTP 1,2 & 3	Priority / Flagships items in CIDP MPT 1,2&3	Baseline information	Targets for MTP 3: 2018 – 2022	Targets for MTP 4: 2023 -2027	Targets for MTP 5: 2028 – 2032
To improve livestock disease control	Vaccination campaign against CBPP, PPR, SGP	60% reduction in preventable diseases in livestock	75% reduction	80% reduction	90% reduction
	Vector control	30% reduction in vector-borne livestock diseases	39% reduction	50% reduction	60% reduction
	Disease surveillance	5% increase on disease awareness by livestock keepers	7.5% increase	12% increase	20% increase
	Livestock movement permit				
To ensure quality assurance of livestock products	Improve clinical and laboratory services	50% response to improved livestock health reported	65% response	70% response	80% response
To improve veterinary infrastructure	operationalize veterinary infrastructure	25% of existing veterinary infrastructure operational (dips, laboratories, cattle crushes)	10 dips & spay runs 25 cattle crushes constructed 6 laboratories Rehabilitated	Incidences of zoonotic diseases reduced by 15%	Incidences of zoonotic diseases reduced by 30%
	Improve livestock identification, traceability and database	10% increase in the number of animals saved from drought and or diseases	13% increase in the number of animals saved from drought and or diseases	24% increase in the number of animals rescued from drought and or diseases	40% increase in the number of animals saved from drought and or diseases
	Improve hides and skins for leather development	Increased production of quality (grade 1) hides and skins products -valued at 1.5M One tannery to be constructed and operational	Increased production of quality (grade 1) hides and skins products -valued at 1.95M	Increased production of quality (grade 1) hides and skins products -valued at 2.925M	Increased production of quality (grade 1) hides and skins products -valued at 4.68m

Targets MTP 1,2 & 3	Priority / Flagships items in CIDP MPT 1,2&3	Baseline information	Targets for MTP 3: 2018 – 2022	Targets for MTP 4: 2023 -2027	Targets for MTP 5: 2028 – 2032
To strengthen linkage with research institutions on livestock diseases		20% of livestock keepers adopt appropriate livestock husbandry technologies for improved productivity	26% of livestock keepers adopt appropriate livestock husbandry technologies for enhanced productivity	39% of livestock keepers adopt appropriate livestock husbandry technologies for increased productivity	60% of livestock keepers adopt appropriate livestock husbandry technologies for increased productivity
To improve livestock production and productivity	Establish AI station	2 AI stations to be established	AI stations established and functional	AI stations established and functional	AI stations established and functional
		1,000 cattle inseminated	The number of cattle inseminated increased by 30%	The number of cattle inseminated increased by 50%	
FLAGSHIP PROJECTS, MPT 1,2&3 - VETERINARY SUB-SECTOR					
Establishment of a livestock disease screening area “(DFZ)” in Burat ward within the Isiolo livestock holding ground	20% complete; no money was set aside for the project		Complete and operation	Complete and operation	Complete and operation
Completion and operationalization of Isiolo abattoir to increase commercial livestock off-take.	85% complete including holding facility		Complete and operation including redesigning, equipping and PPP node	Complete and operation	Complete and operation
To enhance livestock market development	Increased livestock trade	livestock trade policy in place	3 county specific livestock trade laws operational	5 bills / laws operational	10 bills / laws operational
		448 employed in the livestock meat trade	582 employed	874 employed	1,398 employed
		36,014 number of livestock species sold	44,818 of	70,227 livestock number sold in the market	112,364 livestock number sold in the market

Targets MTP 1,2 & 3	Priority / Flagships items in CIDP MPT 1,2&3	Baseline information	Targets for MTP 3: 2018 – 2022	Targets for MTP 4: 2023 -2027	Targets for MTP 5: 2028 – 2032
		8 million revenue generated from meat cess	10.4 million Revenue from meat cess	15.6 million revenue from meat cess	25 million revenue from meat cess
	Increased access to livestock marketing information	50% of livestock traders access and utilizing livestock market information	65% of livestock traders accessing information	75% of livestock traders accessing information	90% of livestock traders accessing information
To improve livestock marketing infrastructure	Establish standard livestock market infrastructure established	9 markets constructed and equipped operating sustainably	Commercial sales of livestock increased by 10%	Commercial sales of livestock increased by 20%	Commercial sales of livestock increased by 30%
	Strengthen co-management	3 markets to be constructed and equipped			
	improve livestock producers and their enterprises	monthly income for market livestock traders in Isiolo town 95 million	Increase monthly income for livestock market livestock to 123.5 Million	Increase monthly income for livestock market livestock to 185.3	Increase monthly income for livestock market livestock to 296.4
Rangeland management and development	Rehabilitated degraded rangelands	300 Ha under fodder production	As presented under the flagship		
To support Rangeland rehabilitation and management	Improved strategic feed reserves	200 Ha cleared and reseeded			
		5 hay sheds constructed			
	Rehabilitate strategic boreholes	3boreholes			
Capacity-building of rangeland management committees	committees established and capacity built	10 number of a committee established	15 committees trained on sustainable rangeland management	25 committees trained on sustainable rangeland management	30 committees trained on sustainable rangeland management
To improve livestock and livestock product value addition	Increase income from livestock	3 processing/cottage industries established	Income from livestock and livestock products increased by 5%	Income from livestock increased by 15%	Income from livestock increased by 25%
	Enhance apiculture as an enterprise	1 milk cooling facility			

Targets MTP 1,2 & 3	Priority / Flagships items in CIDP MPT 1,2&3	Baseline information	Targets for MTP 3: 2018 – 2022	Targets for MTP 4: 2023 -2027	Targets for MTP 5: 2028 – 2032
	Increased revenue from camel milk processing	1 milk processing plant Milk trade 350 million	Increased revenue from improved honey production 4.5 M	Increased revenue from improved honey production 6.8 M	Increased revenue from improved honey production 10.9 M
	Enhance apiculture enterprise development	1 honey processing plant 1,300 Langstroth hives 500 KTBH	Increase Langstroth hives number from 1,300 to 2,000 Increase number of KTBH hives from 500 to 1000	· Increase Langstroth hives number from 2,000 to 2,500 · Increase number of KTBH hives from 1000 to 1500	Increase Langstroth hives number from 2,500 to 3,000 Increase number of KTBH hives from 1,500 to 2,000
		revenue from improved honey production 3.5 M	Increased revenue from improved honey production 4.5 M	· Increased revenue from improved honey production 6.8 M	Increased revenue from improved honey production 10.9 M
	Increase the type of value-added products (Milk, meat, eggs, hides and skins, hooves, horns, bones)	3 products value-added (Milk, meat, honey)	4 additional value-added products	8 additional value-added products	12 additional value-added products
	Livestock Breed improvements	No and type of livestock breed introduced	Cattle 550 Togenberg goats 500 Galla goats 1,000 Improved chicken 5000 Somali camel 100	number of pastoralists buying improved livestock breeds 5%	number of pastoralists buying improved livestock breeds 15%
county livestock insurance program	Reduced livestock drought-related risks	200 beneficiaries adopting livestock insurance products	1,000 beneficiaries adopting livestock insurance products	1,500 beneficiaries adopting livestock insurance products	2000 beneficiaries adopting livestock insurance products
		Livestock mortality reduction to 5,000 TLU	Livestock mortality reduction to 6,500 TLU	Livestock mortality reduction to 9,750 TLU	Livestock mortality reduction to 15,600 TLU

Targets MTP 1,2 & 3	Priority / Flagships items in CIDP MPT 1,2&3	Baseline information	Targets for MTP 3: 2018 – 2022	Targets for MTP 4: 2023 -2027	Targets for MTP 5: 2028 – 2032
To Support to livestock producers and business associations,	Increased income and partnerships	groups created	15 groups established and functional	30 groups established and functional	45 groups established and functional
		2 cooperatives registered	4 cooperatives registered	6 cooperatives registered	8 cooperatives registered
To strengthen capacity development of pastoralist	Develop extension materials	The proportion of pastoralists adopting TIMPs 30%	The proportion of pastoralists adopting TIMPs 39%	The proportion of pastoralists adopting TIMPs 50%	The proportion of pastoralists adopting TIMPs 60%
		5 extension materials / messages developed	7 extension materials / messages developed 7	10 extension materials / messages developed	16 extension materials / messages developed
	development of MPTU	No of training conducted 4	No of training conducted 6	No of training conducted 8	No of training held 12
Enhancing Development and management of human capital in the sector	Improve human and physical institutional capacity for efficient and effective service	Data on existing staff strength Vets LPO Meat inspectors Extension etc	As per the study conducted. ¹		
	Physical capacity	6 offices constructed and equipped 2 vehicles procured 25 motorcycles			
Formulate and domesticate of policies in all sub-sectors	Review and Enactment of County laws responsive to the needs of communities through public participation.	Livestock policy 2016 Abattoir policy 2014 Livestock sales yard bill 2016 Rangeland management policy 2016	Policies, bills, regulations – for enactment		

Targets MTP 1,2 & 3	Priority / Flagships items in CIDP MPT 1,2&3	Baseline information	Targets for MTP 3: 2018 - 2022	Targets for MTP 4: 2023 -2027	Targets for MTP 5: 2028 - 2032
Promotion of Sector coordination & partnerships with all stakeholders in the county	Strengthen coordination and partnership	1 county Agriculture Sector coordinating committee	Formed	functional	functional
Establishment of Monitoring, Evaluation & learning the sector	Improve institutional capacity for efficient and effective service delivery	1 M\$E exist	Needs to be functional Technical personnel able to access and make decisions	Needs to be functional Professional personnel able to access and make decisions	Needs to be functional Technical personnel able to access and make decisions

FLAGSHIP PROJECTS, MPT 1,2 &3 - LIVESTOCK PRODUCTION SUB-SECTOR

Rangeland management and development	Rehabilitated degraded rangelands	300 Ha under fodder production	1,000 Ha under fodder production	2,000 Ha under fodder	4,000 Ha under fodder
To support Rangeland rehabilitation and management	Improved strategic feed reserves	200 Ha cleared and reseeded	400 Ha cleared and reseeded	750 Ha cleared and reseeded	1000 Ha cleared and reseeded
		5 hay sheds constructed	Number of hay sheds increased to 8	Number of hay sheds increased to 12	Number of hay sheds increased to 20
	Rehabilitate strategic boreholes	3boreholes	3 borehole rehabilitated	3 borehole rehabilitated	3borehole rehabilitated

4.5 Fisheries Sub-Sector

It is aimed at improving production, productivity as well as food security and nutrition for smallholder farmers. The sub-sector will involve the adoption of new production technologies, the introduction of superior fish breeds, aquaculture value addition, training of personnel and development policies and acts responsive to the needs of the community (Table 10) below

Table 10: Projected Fisheries Sub-Sector Delivery Targets 2018 -2022

Targets MTP 1,2 & 3	Targets for MPT 1&2; 30% food secure by 2017	Baseline information	Targets for MTP 3: 2018 – 2022	Targets for MTP 4: 2023 -2027	Targets for MTP 4: 2027-2032
To improve fisheries Production and productivity	<ul style="list-style-type: none"> · adoption of new production technologies · introduction of superior fish breeds 	<ul style="list-style-type: none"> · 1.7 MT of aquaculture fish produced · 23 fishermen trained · 8 ponds rehabilitated · 1 fish seed bulking unity · 1 hatchery 	<ul style="list-style-type: none"> · 2.55 MT of fish produced · 23 fishermen trained · 8 of ponds · 2 · 1 	<ul style="list-style-type: none"> · 3.32 MT of fish produced · 30 fishermen trained · 11ponds · 2 · 1 	<ul style="list-style-type: none"> · 5.0 MT of fish produced · 40 fishermen trained · 15 ponds · 2 · 1
To improve management and development of riverine capture fisheries	fish safety assurance value addition and marketing	34.6 MT of riverine fish produced No cold chain facilities / refrigerated motor vehicle 8 coolers boxes 11 processing facilities (solar driers etc.) 10 fishermen trained on hygiene and appropriate methods of storing & preservation	47.32 MT of fish produced 3 11 14 14	70.98 MT of fish produced 6 15 20 18	114 MT of fish produced 9 20 26 24
	Increase incomes from fish and fish products for fish farmers	1 fish kiosks/outlets in Merti 10 producers linked to the fish market	30% increase 15	33.3% increase 20	36.9% increase 25
Enhanced staff capacity and development	Recruit, train and deploy skilled staff Office equipment and facilities Staff transport and mobility facilities	As per the study conducted ²			
To review and alignment fisheries laws and regulations	County-specific laws responsive to the needs of the communities	# of bills developed and enacted	1 bill drafted and enacted	1 bill developed and enacted	1 bills developed and enacted

4.6 Summary of Recommended Actions

These recommendations are intended to support steps towards scaling up and implementation of revised ASP

1. Farm mechanization services and agricultural inputs to enhance production /productivity and expand to commercial farming, improve livestock and fisheries value chain development
2. Improved fishing technologies to increase production and productivity of fisheries including value addition
3. Climate change adaptation measures through enhanced water harvesting systems and crop diversification
4. Development of an M&E framework for quality data-collection, tracking project implementation and incremental achievements MTP for vision 2030
5. Initiate resource mobilization strategy from stakeholders including development partners and private sectors to complement government efforts to achieve sector objectives
6. Influence and leverage for additional resources from national government and partners to scale up Agriculture Sector projects inventions
7. Continue with domestication and enactment of County specific laws responsive to the needs of the communities
8. Domestication of the Presidential Big 4 Agenda and Governor's Manifesto on food and nutrition security to expand on existing food and nutrition security at household levels



CHAPTER

5

**IMPLEMENTATION
FRAMEWORK**

IMPLEMENTATION FRAMEWORK

5.1 Department of Agriculture, Livestock and Fisheries

In the County, the Departments of Agriculture Livestock and Fisheries Development (DAL&FD) is headed by a County Executive Committee (CEC) member. According to Kenya Constitution 2010 Clause 183 (1) and County Government Act 2012 Section 36, the CEC member implement County and National legislations within the county, manage and coordinate the functions of department, prepare proposed legislation for consideration by the County Assembly, provide the County Assembly with full and regular reports on matters relating to the county and supervise the administration and delivery of services in the County.

5.2 Structure and Organization

The Department of Agriculture Livestock and Fisheries Development has three technical directorates: (1) Agriculture, (2) Livestock Production and (3) Fisheries. Its structure consists of the CEC member office (with three Chief Officers: Agriculture, Livestock and Fisheries); at Sub-County offices, it has Sub-County Agriculture, Livestock and Fisheries Officers with representation at Ward level.

Annual plans, its targets and budgets will be drawn from the sector plan and will be cascaded downwards from county, sub-county, ward and village level for implementation. The process of ensuring community action plans are fully integrated into county planning processes and budgeting. The devolved government, therefore, offers a platform where community members and residents of the county can formally organize themselves to formulate their development plans, which articulate their priorities needs in terms of development interventions.

5.3 Coordination mechanisms

Based on the 2013-2017 ASP target reviews, the Sector has to mobilize national and county resources to achieve the ambitious targets set out in 2018-2027 plans. The sector will need to work closely with various national and county government departments, national government agencies / Authorities, development partners, non-state actors and the private sector to actualize the plan. Develop and Institutionalize county Agriculture sector forum for better sector coordination of development activities and synergy among the stakeholders with the framework of Joint Agriculture Sector Consultations and Cooperation Mechanisms (JASCCOM)

5.4 Stakeholder Analysis

Stakeholders of the Department of agriculture, livestock and fisheries developments are key in the implementation process as they play a pivotal role in supplementing government development efforts. The main stakeholders and summary of their areas of intervention are shown in Table 11 below.

Table 11: Summary of Stakeholders analysis and core activities

S/No	Core activities	Area of Interventions
1	Livestock Market Systems (LMS)	<p>It's an economic growth project whose objectives are;</p> <p>To support livestock owners to increase their income</p> <p>To support Livestock Value Chain actors to increase productivity and/or upgrade their investment.</p> <p>Components:</p> <p>1. Improving Business Enabling Environment.</p> <p>1.1. Development of Market Best Practices Guides (Livestock Market Management & Animal Health)</p> <p>2. Expand End Market Opportunities & Catalyzing commercial investments.</p> <p>2.1 Livestock Markets & Business Development Infrastructure Grants</p> <p>2.2 Improve Access to markets and Strengthens livestock value chains</p> <p>3. Improving Livestock Productivity</p> <p>3.1 Support animal health service provision</p> <p>3.2 Fodder/Pasture related activities</p> <p>4. Gender Mainstreaming</p>
2	SNV	Fodder production, camel milk, livestock infrastructure, capacity-building
3	KLMC	<ul style="list-style-type: none"> · To improve the livelihoods and resilience of pastoral communities and other livestock keepers/producers by providing services that effectively respond to their needs' · Promotes livestock value addition, and marketing and co-management of livestock infrastructure. · Collection and provision of Livestock market information through FM radios · Support development of County policy and legislations – strategy, sale yard bill and others (KRDP 1) · Link livestock producers and Traders to potential markets
4	MID-P	To enhance drought resilience of pastoral communities
5	FAO	Building resilience of vulnerable communities in ASALs through increased adaptive capacity increased access to productive assets and improved Natural resource management.
6	RPLRP	<p>The project aligns closely with the Country Programming Papers for Ending Drought Emergencies and is coordinated by IGAD under the Regional Programming Framework.</p> <p>Component 1-Natural Resources Management</p> <p>Component Two- - Market Access and Trade</p> <p>Component Three - Livelihood Support</p> <p>Component Four - Pastoral Risk Management</p>

S/No	Core activities	Area of Interventions
7	ASDSP	<p>The overall programme goal is to transform Kenya's agricultural sector into an innovative, commercially oriented and modern industry that will contribute to poverty reduction, improved food security and equity.</p> <p>Outcome 1: Improved productivity of priority value chains (Beef, Camel milk, Tomato)</p> <p>Outcome 2: Enhanced entrepreneurship</p> <p>Outcome 3: Market access</p> <p>Outcome 4: Improved coordination, consultation and cooperation mechanisms in the sector</p>
8	DRSLP	OBJECTIVE; Improve resilience & livelihoods of communities in the target Counties
9	Syngenta	Goal is to convert subsistence to commercial farming by an improvement of quality and quantity through agronomy and seed production
10	VSF Suisse	<ol style="list-style-type: none"> 1. Integrated Camel Management Package Phase III (ICMP) 2. Improved Community Knowledge on Animal Diseases (ICKAD) 3. To improve camel meat hygiene through training of post-slaughter camel meat chain actors and improvement of meat hygiene facilities
11	State dept of Agriculture	<p>To promote and facilitate the production of food and agricultural raw materials for food security and incomes; advance agro-based industries and agricultural exports, and enhance sustainable use of land resources as a basis for agricultural enterprises</p> <p>The sub sector implements the following three strategic programs, mainly from the county budget:</p> <p>1. Crops, productivity and output improvement - 42m</p> <ul style="list-style-type: none"> • Enhanced accessibility of affordable inputs and credit to farmers • Promote sustainable land use and environmental conservation • Capacity-building of staff and farmers • Modernization of Agriculture Training Centre-ATC • Setting up sustainable agricultural mechanization services <p>2. Increase volume and value of trade in markets-10m</p> <ul style="list-style-type: none"> • Promote market access and product development • Promote value addition • Facilitate the upgrading of value chains <p>3. Extension Administration, Planning and Support Services-68m</p> <p>Create an enabling environment for agricultural development</p> <p>Enhance institutional efficiency and effectiveness in implementation and extension services.</p> <p>Policy development</p>
12	FAO	<ul style="list-style-type: none"> • Natural Resource Management (NRM) (Planned grazing, Water management, Conservancy promotion-Training, land governance, etc.) • Livestock Health • Extension Messages (Radio programmes- Borana and Somali dialects also Samburu)
13	WFP	<ul style="list-style-type: none"> • Sustainable food system • Capacity-building fish farmers • Support beekeepers • Natural resources management



ANNEXES

ANNEXES

Annex 1: Livestock Policy Objectives and Output Highlights¹¹

1. To attract public and private investments along the different livestock value chains
2. To enhance animal health and increase the production, productivity and resilience of livestock production systems
3. To enhance innovation, generation and utilization of technologies, capacities and entrepreneurship skills of livestock value chain actors
4. To enhance access to markets, services and value addition

SO1: To attract public and private investments along the different livestock value chains

	Expected Results		Strategies to be employed
1.1	Improved animal health systems and reduced impact on animal disease	1.1.1	Strengthen veterinary governance
		1.1.2	Selection of and targeting value chains with comparative advantages
1.2	The asset values, socio-economic benefits and potential of the livestock sector recognized	1.2.1	Re-assessment and documentation of socio-economic benefits
			Promote evidence-based advocacy on the value and benefits of livestock
1.3	Public and private sector investment policies, incentives and regulatory frameworks to enhance the performance of priority livestock value chains developed and implemented	1.3.1	Create enabling conditions and incentives to support private investments
		1.3.2	Develop specific investment frameworks for priority value chains
		1.3.3	Promote and establish innovative funding mechanism in support of the values chains
			Improve intersectoral linkages and collaboration to enhance public funding and ensure infrastructural development to support livestock value chains
1.4	Safeguard mechanisms to minimize the impact of negative externalities on public goods are in place	1.4.1	Develop and implement policies that safeguard public goods against negative externalities

¹¹ Isiolo Livestock Policy (2016). Transforming Isiolo's Livestock Sector for Accelerated Economic Growth

SO 2: To enhance animal health and increase production, productivity and resilience of livestock production systems

	Expected Results		Strategies to be employed
2.1	Improved animal health systems and reduced impact of animal diseases	2.1.1	Strengthen veterinary governance, animal health systems and service delivery
		2.1.2	Strengthen and harmonize veterinary curricula and training
		2.1.3	Harmonize and apply veterinary and drug legislations, animal health and
2.2	The impacts of animal diseases on livestock production and productivity and public health minimized	2.2.1	Control and progressively eradicate priority animal diseases and zoonoses
		2.2.2	Support One Health and cross-border/ regional coordination mechanisms for harmonization of disease prevention and control approaches aligned to the national integration agenda
2.3	Genetic potential and performance of animals improved	2.3.1	Accelerate genetic improvement and access to appropriate, productive and resilient breeds that best match the production systems/environments mediated by innovative research and development, business, PPP and ICT
		2.3.2	Formulate and promote supportive, inclusive and integrated institutional and policy frameworks for the sustainable management of animal genetic resources
		2.3.3	Conduct inventory, characterization and innovatively utilize indigenous bio-resources (e.g., rumen and milk microbes, genes) with potential industrial and business application in African production systems
		2.3.4	Design and implement innovative and sustainable breeding and conservation programmes at the national and regional level
		2.3.5	Develop appropriate and more effective delivery systems of suitable and superior genetic material
		2.3.6	Develop and support inclusive community-public-private partnerships and business models for generation, implementation and delivery of appropriate genetic resources

	Expected Results		Strategies to be employed
2.4	Availability and access to quality feed and water enhanced	2.4.1	Re-characterization and assessment of the potential and comparative advantages of the different agro-ecological zones to best match production systems and environments at national and regional levels
		2.4.2	Securing access to natural resources (pasture and water) critical for livestock production at national and regional levels
		2.4.3	Formulate enabling and smart water subsidy, use and management policy frameworks and appropriate partnerships for water harvesting, storage, conservation, business models and reticulation of underground and surface water
		2.4.4	Feed resource inventory and development/ revitalization of policies and systems for research and development of feeds
		2.4.5	Promote incentives, partnerships and delivery models for enhanced access to, multiplication and utilization of existing feed technologies
		2.4.6	Create an enabling environment, models and incentives for enhanced commercial feed production, processing, marketing and utilization.
2.5	Intensification of livestock production systems Promoted	2.5.1	Mapping of high potential zones for intensification and development of appropriate models at the national and regional levels.
		2.5.2	Develop an enabling environment to support, incentivize and build capacity for the transition to more intensive production and management of the external factors.
		2.5.3	Innovative research and development in intensification systems, upscaling and improving dissemination of existing technologies.
2.6	Climate change and variability risks managed	2.6.1	Promote mainstreaming of climate change and variability planning and development and adoption of appropriate technologies.
		2.6.2	Promote early-warning disaster preparedness and response mechanisms for drought, floods and others.

	Expected Results		Strategies to be employed
2.7	Measures for Social protection established and livelihoods diversified	2.7.1	Create an enabling environment for strengthening and harnessing social protection mechanisms and traditional social safety nets.
		2.7.2	Create an enabling environment and incentives for diversification of livestock livelihoods and productive and sustainable exit/ entry into alternative livelihoods.
2.8	Environmental health and ecosystem services enhanced	2.8.1	Develop an enabling environment and promote innovation, incentives and partnerships to reduce greenhouse gas emissions, degradation and other negative impacts.
		2.8.2	Create an enabling environment to institutionalize and generate incentives for enhancing livestock ecosystem services, including biodiversity services, carbon credits, nutrient recycling and contribution to water recharge systems.

SO 3: To enhance innovation, generation and utilization of technologies, capacities and entrepreneurship skills of livestock value chain actors

	Expected Results		Strategies to be employed
3.1	Existing, relevant technologies adopted	3.1.1	Compilation of an inventory of existing technologies.
		3.1.2	Disseminate and promote appropriate technologies through extension services.
3.2	New technologies generated and utilized sustainably	3.2.1	Support and build the capacity of research institutions.
3.3	Traditional livestock Sub-sector commercialized	3.3.1	Mainstreaming entrepreneurship and livestock business and industry training into the education system.
		3.3.2	Formal training of livestock producers as farming professionals.
		3.3.3	Creating awareness of market opportunities and providing incentives for market-oriented entrepreneurship.
		3.3.4	Promoting attitude/mindset change to catalyze commercialization of traditional livestock systems.

SO 4: To enhance access to markets, services and value addition

	Expected Results		The strategies to be employed
4.1	Marketing and value addition infrastructure improved	4.1.1	Promotion of innovative Private-Public Partnerships for infrastructure development
		4.1.2	Lobby for minimum public sector investment to stimulate public good services and open up marginalized areas
		4.1.3	Promote the Build, Operate and Transfer (BOT) Concept
4.2	Value chain approach adopted by stakeholder/ total value increased	4.2.1	Adoption and promotion of existing successful value chains development models
		4.2.2	Development, piloting and promotion of new evidence-based value chains
		4.2.3	Support and capacity-building to enhance stakeholder organization (e.g., cooperatives,) and coordination
		4.2.4	Support and facilitate stakeholder participation in policy processes
4.3	Leverage on ICT to improve access markets, services and value addition enhanced	4.3.1	Promote partnership with ICT companies to develop innovations for livestock marketing, information sharing and other services including financial transfers, disease reporting and extension
		4.3.2	Strengthen public sector support and investment to create an enabling environment
		4.3.3	Promote incentives for value addition with commensurate dis-incentives for the export of raw commodities
4.4	Sanitary measures affecting animal health, food safety, public health enforced	4.4.1	Support capacity-building and coordination mechanisms for sanitary enforcement at County level
		4.4.2	Support advocacy and lobbying among stakeholders to enhance knowledge of and compliance with standards
		4.4.3	Support establishment of self-regulation compliance mechanisms through capacity-building, cooperative development and public-private partnerships
4.5	Access to inputs and services improved	4.5.1	Promote innovative public-private partnerships enabling private sector participation in the provision of services and inputs
		4.5.2	Create an enabling policy environment and incentives to reduce the cost of inputs and services
		4.5.3	Promote local production and intra-regional distribution of essential inputs and supplies

The Annex below shows the baseline data required for monitoring and reporting ASP.

Annex 2: Establishing M&E Matrix¹²

Baseline Agriculture sub-sector	Year 2018	Year 2019	Year 2020	Year 2021	Year 2022
Maize/sorghum (MT)	10,220				
Maize production (MT)	219				
Pulses green gram, cowpeas (MT)	1,043				
Oils crops 434 (MT)	434				
Vegetables (tomatoes) MT	1,097				
farmers accessing subsidized fertilizers & certified seeds (MT)	1,500				
farmers adopting (Certified seeds and climate-smart TIMPs)	1,200				
Cost of running irrigation schemes per acre reduced by 70%					
farmers using drought-tolerant seed	500				
produced annually for market and own consumption (MT)	20,692				
Gross annual revenue from the sale horticulture crops	444 M				
Post- harvest loses reduction	70%				
Vulnerable groups reached.	50				
farmers using agriculture mechanization services	600				
farmers accessing ready markets with pre-agreed prices	750				
Farmers accessing and utilizing farm credit	450				
Pilot growing of nerica rice - 5 plot x 1 Ha (est. 1,000 kg/ha)	0				
Pilot plots growing sun flower - 2 pilot x 1 Ha (est 2.5 MT/Ha)	0				
Pilot plots growing Soya Beans - 2 pilot x 1 Ha (est 2.0 MT/Ha)	0				
Pilot plots growing Simsim - 2 pilot x 1 Ha (est 700kg/Ha)	0				
The area under irrigation Ha	1,497				

Baseline Veterinary Services	Year 2018	Year 2019	Year 2020	Year 2021	Year 2022
Reduction in preventable diseases in livestock	60%				
Reduction in vector-borne livestock diseases	30%				
Response to improved livestock health reported	50%				
Increase on disease awareness by livestock keepers	5%				
Increase in the number of animals saved from drought and or diseases	10%				
Value of quality (grade 1) hides and skins products	1.5 million				
Percentage of livestock keepers adopt appropriate livestock husbandry technologies for improved productivity	20%				
Reduction in the incidences of zoonotic diseases	5%				

Baseline Livestock Production	Year 2018	Year 2019	Year 2020	Year 2021	Year 2022
Number of livestock trade policy in place	0				
Number employed in the livestock meat trade	448				
number of livestock species sold annually	36,014				
Revenue generated from meat cess	8 million				
Livestock traders access and utilizing livestock market information	50%				
Number of markets constructed and equipped operating	3				
The area under fodder production (Ha)	300				
Area reseeded (Ha)	200				
Hay sheds constructed	5				
Average monthly profit for livestock meat business owners kshs	933,315				
The volume of locally manufactured livestock feeds per year (MT)	1,920				

Baseline Livestock Production	Year 2018	Year 2019	Year 2020	Year 2021	Year 2022
Monthly income earned by market livestock traders in Isiolo town	95 million				
Increased revenue from camel milk processing and trade	350 M				
Increased revenue from improved honey production	3.5 M				
Livestock mortality reduced	5,000 TLU				
Number of improved breeds purchased					
Extension materials / messages developed	5				

Baseline Fisheries					
Aquaculture fish produced (MT)	1.7				
Fish ponds rehabilitated	8				
fish seed bulking unity	1				
Fish hatchery	1				
Number of fishermen trained	1				
Riverine fish capture (MT)	34.6				
Number of Cold chain facilities in place					
Number of Cooler boxes purchased					
Number of processing facilities (solar driers etc.) constructed					
Number of fishermen trained on hygiene and appropriate methods of storing & preservation					
Number of fish kiosks/outlets established	1				
Number of producers linked to the fish market					
Number of Bills developed and enacted					

Annex 3: Isiolo County livestock Population: 2014 projections and their estimated value

Livestock species	Population (2014)	Mean producer sales price/head (Kshs.)	Assumed mean value/head at 75% of the sale price (KShs.)	The capital value of stocks (KShs.)
Cattle	253,244	24,057	18,043	4,569,281,492
Sheep	531,355	1,636	1,227	651,972,585
Goat	586,119	1,984	1,488	872,145,072
Camel	45,309	38,570	28,927	1,310,653,443
Chicken	44,495	300	225	10,011,375
Pig	600	9,000	6,750	4,050,000
Rabbit	1,200	750	562.5	674,400
Donkey	25,310	6000	4500	113,895,000
Beehive				
-langstroth	1300	300	225	5,265,000
-KTBH	500	300	225	1,620,000
Log hive	1500	300	225	4,050,000
Total				7,532,170,967

Livestock populations and revenue estimates

Livestock species	Population	Products	Units sold	Estimated revenue (KShs.)
Cattle	253,244	Whole	8,080	145,787,440
		Dairy	17,832,600	537,592,600
		Beef	3,940	183,365,000
		Hides	4,246	1,101,703
Goat	586,119	Meat	899,097	17,819,400
		Whole	12,986	19,323,168
		Skins	17,500	1,363,593
Sheep	531,355	Whole	10,590	12,940,980
		slaughtered	12246	183,365,000
		Skins	15,193 pcs	28,538
Camel	45,000	Whole	308	8,909,516
		Milk	6,139,800	245,592,000
		Meat	378,600	136,350,000
Total				1,493,538,938

Hides and skins production Values

Livestock species	Unit	Kg/pcs	Revenue (Kshs.)
Cattle	Hides	51,775 kg	1,101,703
Goat	Skins	20,562 pcs	1,363,593
Sheep	Skins	15,193 pcs	994,731
Camel	Hides	35,168.5 kg	392,958
Total			3,852,985

Source: Department of livestock (2014. Annual Report

Annex 4: List Participants, Agriculture Sector Plan 2018-2027

Name	Sub-sector	Station
1. Florence K Mwangangi	Agriculture	Isiolo
2. Florence Njege	Agriculture	Isiolo
3. Ester Kajuju	Agriculture	Isiolo
4. Dr. Joseph Muriira	Veterinary	Isiolo
5. Mohamed Dokata	Livestock Production	Isiolo
6. Dickson Chauko	Livestock	Isiolo
7. Sylvester Mugo	Livestock	Isiolo
8. Felix Muthomi	Fisheries	Isiolo
9. Golicha Huka	Fisheries	Isiolo
10. Christopher Leshingia	Fisheries	Isiolo
11. Stephen Machan	ASDSP	Isiolo
12. Adan Jaldesa	KCSAP	Isiolo
13. Jarso Halkano	Isiolo CLMC	Isiolo
14. Salad Omar	KLMC	Isiolo
15. Yusuf Dima	MID-P	Isiolo
16. Stephen Lobokon	Weai Sacco	Isiolo
17. Halima Roba	Isiolo Milk Value Chain	Isiolo
18. Josiah Lentimalo	Agriculture Youth Group	Isiolo
19. Achen Lentumunai	Oldonyiro Resident	Isiolo
20. Abdi Osman Haraun	Youth Group	Isiolo
21. Dorina Prech	FCDC	Isiolo
22. Thomas E limlim	FCDC	Isiolo
23. Guyo Haro	Consultant	Isiolo

Isiolo County – Review Agriculture Sector Plan 2018-2022 Contact Technical Persons

Name	Sub-sector	Station
1. Florence K Mwangangi	Agriculture	Isiolo
2. Dr. Joseph Muriira	Veterinary	Isiolo
3. Mohamed Dokata	Livestock Production	Isiolo
4. Felix Muthomi	Fisheries	Isiolo

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Name	Sub-sector	Station
5. Benard Wafulla	Livestock	Isiolo
24. Golicha Huka	Fisheries	Isiolo
25. Amina Barchi	Fisheries	Isiolo
26. Dr. Mwangolla	SCVO	Isiolo
27. Sylvester Mugo	SLD	Isiolo
28. Francis Chabri	Consultant	Nairobi
29. Guyo o haro	Consultant	Marsabit

(Footnotes)

1 Isiolo county capacity need assessment for the livestock sector (2014)

2 Isiolo county capacity need assessment for the livestock sector (2014)

