



MINISTRY OF AGRICULTURE AND
LIVESTOCK DEVELOPMENT

KENYA AGRICULTURAL SECTOR EXTENSION POLICY(KASEP)

December
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FOREWORD

Agriculture is a key sector in the country's economy, contributing about 23 per cent to the GDP and another 27 per cent indirectly through sector economic linkages (Economic Survey, 2021). It remains a major economic pillar that addresses the Vision 2030 agenda. Agricultural sector value chain actors that directly contribute to the realization of the objectives of the Vision 2030, depend on extension and advisory services provided by government and the private sector. Therefore, the Government of Kenya recognizes the important role that extension and advisory services play in transforming and modernizing the agriculture sector. Consequently, the government in collaboration with stakeholders, will continue to promote strategies aimed at stimulating growth and transformation in the sector through provision of efficient and effective extension and advisory services as outlined in the Agricultural Sector Transformation and Growth Strategy, (2019- 2029) that envisions; *A vibrant, commercial and modern agricultural sector that sustainably supports Kenya's development* in the context of devolution, short-term national aspirations for 100% food security, and longer-term global Comprehensive Africa Agriculture Development Programme and the Sustainable Development Goals commitments.

The National Agricultural Sector Extension Policy (NASEP) 2012 outlined the modalities for effective management and organization of agricultural extension services in a pluralistic system where both public and private service providers are active participants. The policy identified among other strategic interventions, the need to progressively move towards privatization and commercialization of extension service delivery; efficient, effective coordination and regulation of extension services and sustainability of extension service delivery through three financing models; public funded, cost sharing and private sector funding where the service is fully commercialized.

Following the enacted of the new constitution 2010 and the subsequent policy implementation over the last 10 years since the policy under review was enacted, a number of challenges have been noted. Therefore, the new policy, KASEP 2022, clarifies the distinct roles performed by the two levels of government as stipulated by the Fourth Schedule of the Constitution of Kenya 2010 and fully addresses the key issues identified in the policy under review. In addition, it provides a point of reference for service providers and other stakeholders on

standards, ethics and approaches, and guides all players on how to strengthen coordination, partnership and collaboration.

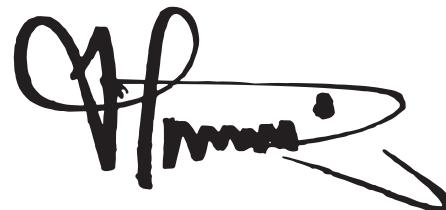
The success of the implementation of this policy will depend on the commitment of all sector players: The National Government, County Government, private sector service providers, development partners and all the sector value-chain actors. Implementation of this policy will contribute towards improved transfer of technology and management for higher agricultural sector productivity, a key prerequisite to poverty reduction and enhanced food and nutrition security.

The Sector Ministries and the County Governments are committed to spearheading the implementation of this policy by all stakeholders by establishing relevant frameworks necessary for improving extension management and services delivery in the country.

The Kenya Agricultural Sector Extension Policy was developed jointly by technical experts from the Ministry of Agriculture and Livestock development and County Governments and various sector stakeholders. Wide consultations were made with stakeholders drawn from public and private sector institutions, universities, farmer organizations, NGOs and development partners among others. We highly appreciate the members of the team that worked tirelessly to ensure this policy is finalized and all the development partners who supported the process.



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Ministry for Agriculture and
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H. E. Rt. Hon. Kenneth M. Lusaka, EGH
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PREFACE

The provision of effective and efficient extension and advisory services is undoubtedly critical in transforming the agricultural sector. The importance of the afore-mentioned services cannot be over-emphasized since the future of the sector is anchored upon it. In Kenya, the sector is characterized by an abundance of opportunities throughout the value chains that should be enhanced in the endeavor to realize the objective of achieving 100 percent food and nutrition security.

The extension and advisory services serve as a crucial catalyst that aid especially the producers to realize their optimum potential which will not only culminate into increased productivity, creation of jobs and eradication of poverty.

There has been a need for a broader and effective agricultural extension policy framework that provides a coordinated and pluralistic approach and which acknowledges the significance of the extension and advisory services in respect of technology transfer, information sharing and skills development, particularly of smallholder producers across the sector. Information technology and digital technologies for extension services are playing an increasingly important role in reshaping the agri-food sector.

The attainment of Kenya's Vision 2030 agenda will be incomplete without the full participation of the marginalized groups of actors especially women and youth that want to become successful agri-entrepreneurs and producers. The successful participation of the household and smallholder producers in the mainstream of the economy is dependent upon adequate provision of appropriate extension and advisory services.

It is our wish that the intervention measures outlined in the Kenya Agricultural Sector Extension Policy 2023 will enhance the standards of our agricultural extension systems and ensure that extension services will be prioritized. More support must be geared towards mobilizing adequate resources towards

refreshing the extension and advisory services in the sector. This should deepen and demonstrate our commitment towards producers without whom our food sovereignty would be compromised.



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Principal Secretary
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ACRONYMS AND ABBREVIATIONS

AAK	Agriculture Associations of Kenya
AESP	Agricultural Extension Service Providers
AEAS	Agricultural Extension and Advisory Services
AIDS	Acquired Immunodeficiency Syndrome
AMSSs	Agricultural Mechanization Stations
APSK	Animal Production Society of Kenya
ASAL	Arid and Semi-Arid Land
ASTGS	Agriculture Sector Transformation and Growth Strategy
ATCs	Agricultural Training Centres
ATDCs	Agricultural Technology Development Centres
ATO	Agricultural Transformation Office
ATVET	Agricultural Technical Vocational Education and Training
CAADP	Comprehensive Africa Agriculture Development Programme
CASK	Commercial Aquaculture Society of Kenya
CASSCOM	County Agricultural Sector Steering Committee
CBOs	Community Based Organizations
CIG	Common Interest Group
CMIS	Cooperative Management Information System
CRAC	Centre Research Advisory Committee
DIS	Disruptive Information System
EASS	East African Soil Science Society
ESP	Extension Service Providers
FAO	Food and Agriculture Organization
FFS	Farmer Field Schools
FOS	Farmer Organizations
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
ICT	Information and communication technology

IEC	Information Education Communication
IFPRI	International Food Policy Research Institute
JASCCOM	Joint Agricultural Sector Coordination Consultative Mechanism
KALRO	Kenya Agricultural and Livestock Research Organization
KAMIS	Kenya Agricultural Marketing Information System
KAOP	Kenya Agricultural Observatory Platform
KASEP	Kenya Agricultural Sector Extension Policy
KeFS	Kenya Fisheries Service
KLTA	Kenya Livestock Technician Association
KMFRI	Kenya Marine and Fisheries Research Institute
KVA	Kenya Veterinary Association
KVB	Kenya Veterinary Board
LMIS	Livestock Marketing Information System
MoALD	Ministry of Agriculture and Livestock Development
MoALF&C	Ministry of Agriculture, Livestock, Fisheries and Cooperatives
MoUs	Memorandum of Understanding
NAEP	National Agricultural Extension Policy
NALEP	National Agriculture and Livestock Extension Programme
NASEP	National Agricultural Sector Extension Policy
NGOs	Non-Governmental Organizations
PTCs	Pastoral Training Centres
SDG	Sustainable Development Goals
SMS	Subject Matter Specialist
SOCAA	Society of Crop Agribusiness Advisors of Kenya
SWAG	Sector Working Agriculture Thematic Group
TIUs	Technology Innovation Units
TVET	Technical Vocational Education and Training

GLOSSARY OF TERMS

Agriculture	In this document, agriculture means crop, livestock and fisheries
Agricultural sector	The crop, livestock and fishery subsectors". The agricultural sector is functionally related to the land, water, environment, forestry and cooperative sectors
Farmer	A person, who grows crops, rears livestock or produces fish
Clientele	All the customers of a business when they are considered as a group. In this context all the actors along the value chain actors will be considered as clienteles
Knowledge Management	Refers to an integrated approach to identifying, capturing, evaluating, retrieving and sharing information and knowledge related to agricultural extension and advisory services.

EXECUTIVE SUMMARY

Agricultural sector contributes about 23 per cent to the GDP and another 27 per cent indirectly through sector economic linkages and accounts for 65 per cent of the country's export earnings. The Government therefore emphasizes on stimulating growth and transformation in the sector as provided for in the Agricultural Policy 2021 and outlined in the Agricultural Sector Transformation and Growth Strategy, 2019- 2029 that envisions a vibrant, commercial and modern agricultural sector.

A well-functioning agricultural extension service operated by the public and private sectors is one of the critical inputs required for increased agricultural productivity to transform subsistence farming into a vibrant, commercial and modern farming, attain food security, improve incomes, create wealth and employment opportunities. It is, therefore, important to ensure that agricultural extension services are adequately funded, well-coordinated and regulated. Effective linkages between extension service providers (ESPs) and other stakeholders involved in technology development and provision of facilitating factors are critical.

Historically, the country used various extension management systems with varying degrees of success. These included whole farm extension approach, integrated agricultural development approach, and training and visit approach. These approaches had weaknesses as they were top-down and prescriptive with high demand on human, capital and financial resources. The National Agricultural Extension Policy (NAEP), 2001 addressed these weaknesses by articulating the importance of clientele participation and demand-driven extension system; recognizing the role of the private sector in pluralistic extension; and setting out modalities for commercialization and privatization of extensions services. The implementation of NAEP was less successful than initially anticipated due to inadequate institutional arrangements, narrow ownership, lack of a legal framework, lack of goodwill and commitment among some of the top managers coupled with the slow flow of resources.

The National Agricultural Sector Extension Policy (NASEP) 2012, adopted a sector-wide approach to providing extension services. The policy envisioned to enable the extension service to realize its vision: 'Kenyan agricultural extension clientele demand and access appropriate quality extension services from the

best providers and attain higher productivity, increased incomes and improved standard of living'.

The Fourth Schedule of the Constitution of Kenya, 2010 provides for devolution of specific functions in agriculture to the County governments. The National government retains the executive function of policy decision making under Part 1 Section 29 of the Fourth Schedule, capacity building and technical assistance to the Counties while the counties take up the implementation task of the policies generated by the National government. Due to the importance of agriculture to economic development and realization of the constitutional requirements, it is necessary to review the National Agricultural Sector Extension Policy 2012 that guided development of the agricultural extension in the country in order to capture the spirit of devolution.

The main challenges in extension service delivery include: institutional weaknesses in capacity building, technology development and dissemination; harmonizing extension approaches and methods; managing pluralistic extension service for effective service delivery; commercializing and privatizing public extension services without compromising public interest; weaknesses in research-extension-clientele linkages, packaging and disseminating technologies; developing private sector operated extension services to complement public extension services; creating functioning institutional frameworks to coordinate and provide linkages among stakeholders; and mainstreaming cross-cutting issues in extension messages.

This Policy intends to address these challenges to ensure effectiveness and enhanced efficiency in extension service delivery through measures that includes; enhancing capacity for extension through human resource management and development, infrastructure for extension and funding; establish an integrated knowledge management system; improving research-extension-clientele linkages; improving coordination and enhancing partnerships and collaboration; and creation of a legal and institutional framework that support extension. In addition, the policy establishes frameworks for quality assurance for extension and advisory service providers; provide guidelines on extension approaches and methods to be used; and measures for mitigating cross-cutting issues that may affect extension service delivery.

CHAPTER ONE: INTRODUCTION

1.1 Background

1.1.1 Role of the Agricultural Sector

Agriculture is the mainstay of Kenya's economy, contributing 23% to GDP and a further 27% GDP indirectly through linkages with manufacturing and service-related sectors¹. The sector employs more than 40 per cent of the total population and more than 70 per cent of Kenya's rural people² and generally provides a livelihood for close to 80 per cent of the Kenyan population. As such, agriculture has the highest multiplier effect in the economy and the sector is central to the government's Big 4 development agenda whose food security pillar aims at attaining 100% food and nutritional security for all Kenyans.

Agriculture in Kenya contributes to food and nutrition security and creates employment opportunities thus raising the living standards of the population. It also generates foreign exchange through the export of crops, livestock and fisheries products. Agriculture supplies raw materials to industries, thus playing a big role in industrialization. It also provides a market for industrial goods like fertilizers, agricultural chemicals and agricultural machinery and equipment.

Agricultural transformation entails refocusing growth and development trajectory of the sector by improving sector productivity and efficiency in delivery of services along agricultural commodity value chains. This process requires continuous adoption to new technologies and adjustment to emerging trends. The main conduit for knowledge sharing is extension. New demands on extension system include helping agricultural value chain actors cope with climate change threats and other emerging risks. These require extension service providers to go beyond use of conventional technology transfer to other forms of knowledge sharing.

1 KNBS Economic Survey, 2021.

2 Agricultural Sector Transformation and Growth Strategy, 2019-2029

1.1.2 Structure of the Agricultural Sector

The Kenyan agricultural sector consists of predominantly small-scale producers (farmers, fishers and pastoralists) and a relatively small number of medium and large-scale producers. The total farming households as per the 2019 census is approximately 6.4 million (1.7 million crop farmers, 3.9 million mixed farming, 760,000 Livestock farmers, and about 30,000 fisher folks)³.

The small-scale sector accounts for 75 per cent of the total agricultural output and about 70 per cent of marketed agricultural produce. Small-scale producers under this category carry out;

- i. subsistence farming, fishing and pastoralism
- ii. small-scale commercial farming and fishing

Large-scale producers are mainly involved in cash crops, commercial livestock and commercial fish farming. These producers use more inputs and apply better farm management practices, and therefore realize higher enterprise returns.

These characteristics of the agricultural sector have important implications for the structural and institutional organization of both public and private extension and advisory services in terms of approach and content of extension service.

1.1.3 Overview of Evolution of Extension Services in Kenya

Agricultural extension in Kenya dates back to the early 1900s. The extension system has evolved through various stages since the colonial and post-independence eras. The popular approaches during colonial times were mainly tailored to cater for settler commercial farming systems and were mainly commodity based. These were well-packaged programs that combined extension services with credit and subsidized inputs aimed at producing for specific markets. However, the extension approach used for indigenous Africans, who were mainly engaged in subsistence farming and pastoralism, was coercive in nature and therefore not readily accepted because of being settled in marginal areas. In 1954, the Swynnerton plan recommended that native African farmers be allowed to grow cash crops and keep dairy animals and be given an increase in technical assistance and have access to all marketing facilities.

3 Kenya Population and Housing Census, 2019

Aquaculture extension dates back to the 1920s when Government introduced fish farming. In 1948 two farms, the Sagana Fish Farm and Kiganjo Trout Farm were set up to support aquaculture extension through the production of seeds for stocking pods, dams and rivers. After independence, aquaculture extension was spearheaded by the Fisheries Department through the “Eat More Fish” Campaigns which led to a rapid expansion of aquaculture in Kenya. From 2009 to 2010, the Government introduced and implemented the Economic Stimulus Programme (ESP) in which aquaculture extension was a major focus. More persuasive and educational approaches and methods were adopted across the board, implemented mainly with the assistance of donor-funded projects and programmes.

The notable extension successes were in the dissemination of hybrid maize technology in the late 1960s and early 1970s, artificial insemination and cooperative movement through structured agricultural extension and establishment of farmer and pastoralist training centres, the whole farm extension approach, and use of integrated agricultural development approach. In the 1980s and 1990s the structured extension approaches included farming systems, training and visits. Alongside these, the ‘commodity specialized approach’ was predominantly used in the large export commodity subsector spearheaded by commodity boards and private companies.

Other changes included civil service reforms undertaken to pave way for the emergence of the private sector to fill the void created after Government withdrawal from crucial services such as artificial insemination, management of cattle dips and veterinary clinical services. However, since the private sector was not well developed, the reforms led to a decline in quality of these agricultural services as the private sector failed to adequately fill the gap created by reduced public sector involvement. Aspects of privatization reform include subcontracting, cost recovery, and commercialization. Extension and advisory service in Kenya has been historically considered public goods by virtue of the inability of subsistence farmers to pay for them individually.

The performance of the public extension service was negatively affected by reduced financing and extension manpower. These approaches were characterized by high demand for manpower, time and financial resources. Public extension system has been perceived to be top-down, paternalistic, uniform (one-size fits-all), inflexible, subject to bureaucratic inefficiencies and

therefore unable to cope with the demand dynamics of modern agriculture. Based on lessons learnt from the approaches, the Government in collaboration with other stakeholders has in recent years embraced more participatory and demand-driven extension approaches.

To respond to these challenges, the then Ministry of Agriculture and Rural Development formulated the National Agricultural Extension Policy (NAEP) to guide improvements in delivery of extension services in 2001. The NAEP recognized the need to diversify, decentralize and strengthen the provision of extension services to increase sustainability and relevance to farmers. The NAEP was meant to form the basis for all extension work within the government and in its interaction with other stakeholders in agricultural research and development. This was intended to tap farmer participation and private sector contribution in providing extension services. The policy was implemented through among others the National Agriculture and Livestock Extension Programme (NALEP). The approaches that enhanced farmer participation included the focal area approach, farmer field schools (FFS), value chain approach, demand-driven approach among others.

NAEP was succeeded by the National Agricultural Sector Extension Policy 2012 that adopted a sector-wide approach to providing extension services. It provided a point of reference for service providers and other stakeholders on standards, ethics and approaches, and guided all players on how to strengthen coordination, partnership and collaboration. The Agriculture Sector Development Support Programme (ASDSP) that was developed pursuant to this policy and as a successor to NALEP, became operational at the onset of devolution in 2013. The programme's primary goal was to contribute to the transformation of crop, livestock and fisheries production into commercially oriented enterprises that ensure sustainable food and nutrition security by enhancing the capacity of different priority value chain actors at different levels.

Over the years, extension has emphasized on increasing production with little or no regard to value addition and marketing. However, it is now acknowledged that linking production with processing and marketing is a prerequisite in transforming agriculture from subsistence to a commercial enterprise.

1.1.4 Role of Extension and Advisory Services in the Agricultural Sector

Agricultural extension and advisory services (AEAS) can be defined broadly as a set of services and institutions that facilitate agricultural value chain actors to obtain information, skills and technologies to improve productivity, food and nutrition security and well-being⁴. These services are an essential part of agricultural research and development. These are pertinent to effecting change and driving rural, urban and peri-urban agricultural development mainly through small-scale agricultural production. Across the world, agricultural extension forms one of the main conduits of agricultural development and transformation leading to rural poverty reduction and increased food security.

Extension and advisory services provide critical support to producers and other value chain actors in addressing matters relating to agriculture sector. These include rapid transformation in the global, regional and local food and agricultural system, growth in non-farm rural employment and agribusiness, deterioration of the natural resource base, climate change and constraints imposed by various health challenges.

Producers are among the value chain actors most vulnerable to climatic shocks and weather-related disasters that is compounded by market fluctuations, poor governance, conflicts and diseases. Extension and advisory services may provide an opportunity for strengthening the resilience of rural and farming households by increasing their access to resources such as agricultural knowledge and skills. Moreover, agricultural extension also provides a framework through which challenges constraining small-scale farmers can be identified for further investigation and for the development and modification of solution strategies and policies to guide the value chain actors.

Whereas research institutions focus on the technical aspects of generating useful technologies, the agricultural extension and advisory focuses on the dissemination, acceptance and adoption of these technologies by farmers. Learning institutions such as universities, Technical and Vocational Education and Training Centres (TVETs), and agricultural sector training institutions also carry out research and outreach programmes.

⁴ Danso-Abbeam, G.; Ehiakpor, D.S.; Aidoo, R. Agricultural Extension and its Effects on Farm Productivity and Income: Insight from Northern Ghana. *Agric. Food Secur.* 2018, 7, 1–10.

Linkages between extension services, research and clientele feedback mechanisms have remained weak along commodity value chains. However, newer forms of innovation platforms that focus on market access and centre on specific value chains have shown a greater degree of linkages. As such there is need for a good agricultural extension policy to provide an institutional framework that supports sector coordination, collaboration and partnerships.

Delivering on nutrition-sensitive agriculture is less understood. This exposes households to malnutrition, which has intergenerational consequences. Nutrition-Sensitive Agriculture (NSA) is a food-based system to agricultural development that puts nutritionally rich foods, dietary diversity, and food fortification at the heart of overcoming malnutrition and micronutrient deficiencies. The current situation is that the agriculture sector concentrates on increased production and productivity with little concern for the effects of the foods on the body in the long term. NSA stresses the multiple benefits derived from enjoying a variety of foods, recognizing the nutritional value of food for good nutrition, and the importance and social significance of the food and agricultural sector for supporting rural livelihoods. This will require a multi-sectoral approach whereby the extension service provider will closely coordinate with relevant stakeholders to integrate nutrition sensitive messaging interventions in agricultural extension.

1.1.5 Justification for Kenya Agricultural Sector Extension Policy

Agriculture remains a central contributor to overall national economic growth and development for the country. An effective and efficient agricultural extension is vital for steering and directing agricultural growth on a sustained development trajectory. Although the National Agriculture Sector Extension Policy (NASEP, 2012) exist, the impact of agricultural extension and advisory services has remained low negatively impacting on agricultural productivity, incomes and welfare.

After the promulgation of the Constitution of Kenya in 2010, extension and advisory services functions were devolved to the county governments. NASEP 2012 did not sufficiently take into account the constitutional provisions underpinning devolution and the functions of the two levels of Government as relates to agricultural extension. In addition, NASEP did not consider the need to provide a framework for addressing county specific priorities, taking into account

county specific challenges and creating an effective mechanism for extension service coordination while fostering pluralism, partnerships and collaboration at both levels of Government.

Over the past years, the agricultural sector and in particular extension and advisory services provision have experienced many changing aspects. These changes in the extension space calls for more focused extension policy that takes into account new dynamics and global trends. NASEP is therefore inadequate considering these changes, which include: digitization, social inclusivity, private sector participation and new cross-cutting issues. These inadequacies call for a revision of the policy to transform and create a conducive environment for a sustainable agricultural sector extension and advisory service system that can be cascaded to the counties.



CHAPTER TWO: SITUATIONAL ANALYSIS

2.1 Capacity in Extension Service Delivery

2.1.1 Human Resource capacity

Agricultural extension service delivery to clients should ideally be prompt and appropriate for practical application of the information, knowledge and innovations being transferred. This will subsequently spur agricultural productivity, food and nutrition security, improve livelihoods, and promote agriculture as a pillar to household economy. It is therefore imperative that adequate human resource capacity is required to make this achievable.

At the county level, public agriculture extension structure encompasses deployment of extension personnel to support the farmers at the sub-county and ward levels. The duties and responsibilities of extension personnel at the ward level include daily technical planning, supervision, monitoring and reporting of the field activities geared towards food and nutrition security attainment. At the sub-county level, the extension personnel are charged with administrative duties and coordination of all agricultural related activities in the wards. At the county level, the extension personnel are also deployed as Subject Matter Specialist (SMS) in the respective subsectors of crops, livestock, fisheries and cooperatives. Some of them are also attached to specific programs or projects at the county level.

Currently, some counties have employed extension personnel, however, the ratio of extension staff to farmer has not improved. To address this gap, the Government of Kenya launched the Agriculture Sector Transformation and Growth Strategy whose objective is to ensure that the country attains a ratio of one (1) extension personnel to six hundred (600) farmers by the year, 2029. This therefore calls for strengthening coordination among extension service providers for improved provision of agricultural extension and advisory services as well as utilization of information and communication technology to realize this standard.

The private sector employs agricultural personnel but these are inadequate to meet their staffing needs. As a result, they mostly rely on public extension workers to deliver on their tasks. This reliance diverts public extension work force thus hampering the quality of extension services offered. However, proper coordination of these services can assist both the public and private sector actors to achieve their targets efficiently and effectively and improve AEAS.

Requisite education and technical qualification for efficient extension service delivery is important. The role of extension in agricultural development is continuously evolving requiring new skill sets which the extension service personnel do not possess due to lack of programmes for continuous upgrading. Additionally, extension service personnel have inadequate range of specialized technical skills and scope of knowledge on extension delivery.

One other challenge facing AEAS is an aging work force of the extension workers. It is notable that a significant proportion of staff is now nearing retirement age implying a loss of talent and skills because experience and expertise has not been passed along to younger workers. The concern is that it would take some time for the newly employed staff to gain the experience of those they would be succeeding.

The continued trend of low intake of agricultural courses in public and private training institutions in the country has exacerbated this situation. The declining intake in the agricultural related courses and subsequently careers is attributable to the unattractiveness of the agricultural sector and insufficient information regarding the agricultural career choices and mentorship programmes. It is imperative that matters of extension services are entrenched at the lower and secondary education levels as well as reviewing the extension services training curriculum to respond the emerging trends and innovations.

2.1.2 Infrastructure

The infrastructure supporting extension service provision are buildings and offices, transport facilities, ICT and laboratories found in institutions and facilities that undertake extension. These institutions and facilities include experimental and demonstration farms, agricultural training institutions, Agricultural Technology Development Centres (ATDCs), Agricultural Mechanization Stations (AMSSs), Aquaculture Training Institutions, Hatcheries, Efficacy Trial Centres and Livestock Genetic Conservation Centres. Inadequate ICT and associated infrastructural development continue to affect the changing trends of adapting

e-extension services. There is need for the public extension service providers to adapt to this emerging trends and innovations and therefore important that agricultural extension personnel are equipped with the necessary infrastructure fit for purpose to effectively deliver on their tasks. However, the existing infrastructure is inadequate in number with limited equipment and unevenly distributed across the country. Further, the utilization of existing infrastructure is insufficient thereby affecting delivery of extension services.

2.1.3 Funding

Extension service provision is mainly public funded. In most cases, the financing of the services is inadequate which necessitates the funding from strategic partners, NGOs and private sector. The strategic and development partners' funds are mostly channeled to development expenditures. However, the sustainability of such funds is usually uncertain and unstable due to the changing policies of the strategic and development partners. In the long term, this form of funding is not a sustainable strategy for agricultural extension services financing. The inadequacy of funds hampers the performance of extension services, especially in terms of meeting operational costs and sufficient staffing numbers.

Since 2013, County Governments have gradually increased funding to the agricultural sector. However, limited resources have been set aside to support the provision of the extension services hampering extension provision across the country. Therefore, there is need to increase funding for public extension services as well as ring-fence the funds at the county level and ensure access for the specific purposes of provision of extension services.

2.2 Knowledge Management

Knowledge management is important for tracking implementation of policies, strategies and programs. In addition, an enhanced knowledge management system supports concise decisions which are harmonized across the sector and the availability of data and information to all players within the agriculture sector. Conventional and traditional/indigenous information and knowledge is critical for effective and efficient delivery of agricultural extension and advisory services. This information and knowledge include databases, documents, policies, procedures, and previously un-captured expertise and experience in agricultural extension and advisory services.

Currently, the management of knowledge is fragmented. Various public and private actors in different ways collect and analyze data that is used to generate information and knowledge which is intended to promote adoption of agricultural-related skills. However, this information and knowledge is not harmonized and readily accessible to the end users. Consequently, stakeholders especially women and youth mostly rely on informal sources of information.

There are various digital platforms for knowledge management that are operational such as the Ministry website, County digital platforms, Big Data System domiciled at KALRO, Kenya Integrated Agricultural Marketing Information System (KIAMIS), Livestock Marketing Information System (LMIS), Kenya Agricultural Observatory Platform (KAOP) and Cooperative Management Information System (CMIS). Additionally, there are mechanisms for dissemination of information through private sector supported Disruptive Information System (DIS) innovations.

Institutional repositories in public, private and non-state sector space serve an important role in knowledge management for instance. Information and communication technology (ICT) platforms are key to the functioning of knowledge management systems. The alignment of these repositories and ICT platforms to the constitution, the Data Protection Act 2019, and other relevant laws is important in knowledge management. Further low network connectivity, low accessibility and inhibitive costs have resulted in low use of ICT. The rapid technological advances in the ICT arena demands continuous Human resource capacity development. The requisite competences in ICT such as computer programmers, software developers and among others that are necessary for development, maintenance and sustenance of the Agricultural knowledge management infrastructure in Agricultural Extension Service Providers (AESPs) is inadequate.

2.3 Research-Extension-Clientele Linkages

Research and development of agricultural technologies that respond to client needs are important aspects in ensuring a vibrant agricultural sector. The research and technology development is mainly conducted by academic institutions, National and international agricultural research institutions. Additionally, some local and multi-national companies are also engaged in research.

These research institutions have accumulated numerous research and technological outputs that can greatly contribute to increased productivity. Research-extension-clientele linkages are the platforms that enable the interaction and exchange of agricultural research information from the researchers to the value chain actors through the extension service providers and vice versa.

Prior to enactment of the Kenya Agricultural and Livestock Research 2013 (KALR Act), there were structures which were organized and supported by the government through the Kenya Agricultural Research Institute (KARI) to enable linkages between research, extension and farmers. These structures which included Centre Research Advisory Committee (CRAC), Agricultural Technology and Information Response Initiative (ATIRI), and specific research-extension programmes within KARI and the then Ministry of Agriculture, brought together researchers, extension providers and private sector for planning and research agenda priority setting, exchange of agricultural technology and feedback. These structures remained largely dormant in the years leading to enactment of KALR Act. The KALR Act established the Kenya Agricultural and Livestock Research Organization (KALRO) which established institutes responsible for various aspects of agricultural value chains and subsector research. However, the KALR Act did not establish structures to support research-extension-farmer/clientele linkages. There is therefore a growing gap between research and extension due to weak extension-research-clientele linkages. Consequently, resource allocation to research has not been informed by client priorities and demands. In addition, feedback from users of research outputs to inform further research and adaption of existing technologies have been constrained by poor linkages.

Although there have been efforts through the Intergovernmental Institutions such as Joint Agricultural Sector Steering Committee (JASSCOM) and County Agricultural Sector Steering Committee (CASSCOM) to strengthen the research extension linkages, these efforts have realized limited success due to inadequate resource allocations.

2.4 Partnership, Collaboration and Coordination

In a liberalized market and private sector driven economic environment, partnership, coordination and collaboration, are important aspects in the provision and delivery of extension services. The scope of providing extension and

advisory services is beyond one single actor. Several actors in public and private sector (Research Organizations, Development partners, Non-Governmental Organizations (NGOs), Farmer Organizations (FOs), Faith Based organizations (FBOs), agricultural institutions and schools, and Community Based Organizations (CBOs) are increasingly providing extension services in Kenya.

2.4.1 Partnerships

Partnerships in delivery of agricultural extension services exist in different forms including those between the County Governments and private sector, private sector and farmer organizations, private sector and CBOs, donors and schools, among others. Partnerships between public and private sector extension and advisory services are essential to overcome the effects of limited resources, meet the growing demand for food and sustain the natural resource base. Most are involved in input supply for assessing performance to track yields and uses a value chain approach. Other activities include capacity building, research, financing, technical advice, technology development and transfer.

These partnerships may involve signing of Memorandum of Understanding (MoUs) or other documents to facilitate their activities. Partnerships exist to share capital, skill and labour. However, there is limited monitoring to generate data and there are no guidelines on partnerships though there is a chance of a scale up if performance is good.

2.4.2 Collaboration

A number of different actors in AEAS collaborate to perform certain extension activities and may not necessarily have formal or structured arrangements. The collaboration may be for capacity building, value addition, marketing and inputs provision. Such collaborations exist in the Counties and may include extension service providers from the public, private sector and clientele. Such collaborations are usually weak and sometimes may not achieve the desired objectives as there are no binding agreements.

2.4.3 Coordination

The current situation with respect to coordination in extension and advisory service delivery only exists between partnering institutions. At the national level, JASSCOM exists as a coordination and cooperation mechanism between the two

levels of Governments. The Research, Extension and Capacity Building, Sector Working (Agriculture) Group (SWAG) is one of the four SWAGs established by Joint Agriculture Sector Steering Committee (JASSCOM) to enhance the effectiveness of intergovernmental technical consultation with the mandate of facilitating capacity building of national and county bodies aimed at mainstreaming good intergovernmental governance, consultation and partnership practice. At the county level, CASSCOMs exist though are yet to be legalized, most are weak and currently there is limited coordination of AESP.

The existence of multiple extension service providers promotes the adoption and application of technological innovations in agriculture. The multiplicity of extension service providers calls for coordination to ensure delivery of quality services, effectiveness and accountability.

In summary, the weak partnerships and collaboration, and the uncoordinated nature of agricultural extension service delivery by actors has resulted in duplication of efforts, conflict of interest, and wastage of resources and disintegrated service delivery to the clientele.

2.5 Policy, Legal, Regulatory and Institutional Framework

2.5.1 Policies

Agricultural Policy, 2021

The Agriculture Policy 2021 was developed to address identified challenges in the agriculture sector and outlined suitable guidelines to National and County Governments to address them. It specified the different roles of the governments towards ensuring household and national food and nutrition security; food safety; increasing agricultural productivity through use of appropriate good quality and affordable farm inputs; facilitating access to premium, domestic, regional and international markets; and reducing postharvest losses while promoting agribusiness, value addition and product development. The policy included guidelines relating to the promotion of demand-driven research and timely dissemination of research findings in the agricultural sector.

The Agriculture Policy 2021 recognizes agriculture extension and advisory services as an important avenue of sharing knowledge, technologies, and agricultural information and as a link between producers and other actors in the economy. According to the policy, there is increasing demand for extension services due to a rapidly growing youthful population that has a limited knowledge for investment in agricultural activities. Further, it notes that regulation of both the public and private sector extension services has been mostly ineffective. The objective of the Agricultural Policy on extension is to promote appropriate, cost effective and affordable extension services for different agro-ecological zones through strengthening research-extension-farmer liaisons, regulation and quality assurance, enhancing private sector engagement and provision of adequate resources towards the delivery of extension services among others.

Agriculture Sector Transformation and growth Strategy (ASTGS 2019-2029).

In order to transform and modernize agriculture to ensure food and nutrition security and provision of raw materials to the manufacturing sector, the Government has developed nine Flagships through a ten-year Agriculture Sector Transformation and growth Strategy (ASTGS). The strategy identifies agriculture as the leading productive sector for economic recovery and recognizes revival of agricultural institutions and investment in agricultural research and extension as critical and essential for sustainable economic growth.

The ASTGS takes an evidence-based approach, as well as a sharp focus on implementation and delivery with the Counties playing a key role. This approach is the basis for realizing the objectives specified in the strategy which are: increasing incomes for small-scale farmers, pastoralists and fisher folk; increasing agricultural output and value addition and improving household food resilience. The strategy has specific targets to be achieved within the first five year relating to extension which include building technical and management skills in the field for 200 National and County Government transformation leaders, 1000 farmer-facing Small and Medium Enterprises, and 3000 extension agents among others. In addition, the strategy integrates the use of the e-voucher system for input provision, extension services to inform farmers of soil needs among other strategies aimed at promoting the provisions of extension services across the country.

National Agricultural Sector Extension Policy 2012

The Policy sought to promote and guide the realization of demand-driven, sustainable and effective pluralistic extension system. It envisioned that the extension clientele would demand and access appropriate quality extension services from the best providers and attain higher productivity, increased incomes and improved standard of living. The Policy did not take into account the constitutional provisions underpinning devolution; the functions of the two levels of Government as relates to agricultural extension were not clearly defined. The policy recognized the need for pluralism in extension service provision but this has remained uncoordinated and lacks a framework to ensure standards and quality in extension service delivery. There is therefore the need for a framework for extension service coordination while fostering pluralism, partnerships and collaboration at both county and national levels. On data and knowledge management the policy lacked clear direction on integrated data and knowledge management systems that would ensure efficiency knowledge management in the agricultural sector.

National Livestock Policy, 2020

The policy advocates for strong research and extension institutions that are key for enhancing competitiveness in the livestock industry and increasing livestock productivity. The policy proposes various intervention measures to address the main constraints in extension service delivery within the livestock sub-sector which include: low investment in livestock extension, inadequate content in extension packages, minimal collaboration among various extension service providers and insufficient attention to socio-economic factors that affect livestock production and marketing.

Veterinary Policy, 2019

The policy recognizes that low animal productivity is due to challenges such as poor genetics, inadequate uptake of modern breeding technologies, a weak infrastructure for animal production, animal diseases and inadequate extension services.

National Food and Nutrition Security Policy, 2011

The policy proposes establishment of expanded and purposefully linked agricultural and nutritional research and strengthened extension that are needed to better develop and disseminate suitable technologies to sustainably address food security and nutrition. The policy is alive to the fact that low extension worker to farmer ratios, limited capacity to analyze data and low frequency of agricultural censuses and surveys, raise general concerns over data reliability impacting negatively on extension service provision.

National Agricultural Research Policy, 2012

The policy recognizes that the ingredients of achieving its objectives are the linking of research products to markets while organizing producers and providing effective extension services throughout the value chain continuum. The policy recognizes that many technologies for enhancing productivity and product development exist but have remained on the shelves. The situation is exacerbated by the growing gap between research and extension due to poor research-extension clientele linkage, inadequate appropriate extension methodologies and functional mechanisms.

National Environment Policy, 2014

The policy recognizes formal education as important to increase awareness, improve extension services, sensitize people on environmental issues and build institutional capacities.

National Land Policy Sessional Paper No 3, 2009

The policy states one of its principles as creating an enabling environment for agriculture and livestock development as well as other uses, including research, extension services, finance and infrastructure, marketing, agro-processing, rural electrification and training of farmers.

Sessional Paper No. 5 of 2016 on National Climate Change Framework Policy

The policy provides for incorporation of climate change knowledge into government implemented public awareness initiatives including civic education and extension programmes.

National Information, Communications and Technology (ICT) Policy, 2019

The policy predicts that, by the year 2030, Kenya will have an estimated population of 66M, with over 200M devices and sensors connected to the internet. It further states that, all aspects of lives including money, security, governance, agriculture, tourism, education and health will be fully and seamlessly integrated into the digital economy.

National Aquaculture Policy, 2011

The policy recognizes that Government will strengthen pluralistic approach extension, research-extension linkages to enhance technology development, packaging, dissemination and adoption. The Government will encourage privatization, decentralization and diversification of extension services in areas/ enterprises that attract private sector operations.

National Oceans and Fisheries Policy, 2008

The policy recognizes that, over the years, the production from aquaculture has been hampered by lack of appropriate technologies, fish feed, fish seeds and weak extension services. The policy then advocates for the reform and improvement of the current extension services to enhance efficiency and effectiveness through public private partnerships by building the capacity of staff, fishers' groups and fish farmers.

2.5.2. Legal and Regulatory framework

(a)The Constitution of Kenya

The Constitution of Kenya has assigned functions to the National and County Governments under the Fourth Schedule. The National Government has been assigned the function of development of national extension policy, standards and guidelines for extension and advisory services, capacity building and technical assistance to the Counties in all matters provision of extension services.

On the other hand, the County Governments are responsible for agriculture, including— crop and animal husbandry, livestock sale yards, county abattoirs, plant and animal disease control, fisheries, veterinary services and cooperative

development. This therefore means that the County Governments are responsible for provision of extension and advisory services in crops, livestock, fisheries and cooperative development subsectors.

b) Relevant Legal Frameworks

The country has enacted various laws which provides for extension services and farmer advisory services such as the Crops Act No. 16 of 2013, the Fisheries Management and Development Act, 2016, Veterinary Surgeons and Para professions Act No.29 of 2011, Animal Diseases Act, cooperative societies Act, 2012 among other legislation. These pieces of legislation mandate various National Government institutions such as the Agriculture and Food Authority, Kenya Fisheries Service to put in place programmes for ensuring the provision of the technical support including research and extension services to growers and dealers as well as provide a national framework of extension and training services.

Although regulatory initiatives and strategies mentioned above aimed at ensuring improved extension and advisory services, the non-conformity of the national policy framework to the Constitution means that the implementation of these strategies has been limited to the varied and subjective interpretations by stakeholders. The extension and advisory service providers (EASPs), have limited formal guidelines, governing code of ethics and working standards. The practice therefore, is for every EASPs to apply what they regard as appropriate. Consequently, some providers venture into extension services without adequately trained personnel and/or the pre-requisite extension working tools, thereby adversely affecting the quality of services offered. Thus, extension and advisory services in Kenya remain unregulated.

2.5.3 Institutional Frameworks

Currently there exist a number of institutions involved in agricultural extension. These institutions include the public sector (National and County Governments), private sector, development partners, academic and research institutions and non-profit organizations.

2.5.3.1 National Government

The National Government consists of Ministries, Departments, Agencies such as State Parastatals and other public bodies charged with specific mandates.

Basically, the overall function of the national government is to provide and facilitate a conducive environment for all stakeholders to do businesses that will contribute to overall economic development and improved livelihoods of the citizens. The support and facilitative roles have been outlined under the eight thematic areas of this policy.

2.5.3.2 County Governments

There are forty-seven counties in Kenya at the moment. Whereas agriculture is a fully devolved function, the forty-seven County governments need to cooperate, collaborate and consult with the National government in the development, implementation and coordination of policies, projects and programs in order to ensure their success.

2.5.3.3 Private Sector

These are institutions complement the public sector in the development of agriculture and other sectors and include; agri - processors, input suppliers, producer and consumer associations, financial institutions commodity-based groups and marketing agencies. They play a very critical role in value chain development, value addition and employment creation.

2.5.3.4 Development Partners

Development partners offer financial and technical support not only to the agricultural sector but also to other sectors. These organizations are either multi-lateral or bilateral. They supplement Government resources for the implementation and development of infrastructure, projects and programs aimed at mitigating certain economic development challenges.

2.5.3.5 Academic and Research Institutions

Academic institutions consist of public and private universities authorized and regulated by the Commission for University Education (CUE) while the tertiary institutions are regulated by the Technical and Vocational Education and Training Act (TVETA). Whereas the universities offer Degrees and Diplomas, the tertiary institutions offer diplomas and certificates in various disciplines. The university graduates are wired to become industry managers whereas TVET graduates provide a pool of technically skilled personnel at entry and middle level management thereby ensuring that there are no skills mismatch and skills

gaps within the local workforce.

Research institutions are mainly public and are mandated to conduct research and development in various sectors. Therefore, they generate knowledge and technologies for adoption by the value chain actors.

2.5.4 Professional Associations

There exist numerous agricultural based professional and paraprofessional associations that deal with welfare issues of their members in addition to providing information and undertaking capacity building. In the agriculture sector, only veterinary surgeons and paraprofessional are officially regulated by the Kenya Veterinary Board. In order to ensure that consumers of professional services in the agriculture value chain constantly receive quality in extension services and advisory services, it will be essential to establish and maintain professional regulatory organizations for various specializations.

2.6 Extension Standards and Quality Assurance

Agricultural extension and advisory service (AEAS) is defined as a system that facilitate and support the access of farmers, their organizations and other value chain actors to knowledge, information and technologies. Standards are authoritative principles or rules that usually implies a model or pattern for guidance whereas quality assurance is the maintenance of a desired level of excellence in a service or product, especially by means of attention to every stage of the process of delivery or production.

The current situation on capacity building of AEAS is that institutions develop their own curriculum and certification and lack structured and harmonized qualification assessment framework that produces hands on sector specific skills.

Some extension service providers engage in extension services without requisite extension qualification. Many extension service providers develop their own messages which they disseminate to clients through digital platform, print and electronic media, and other Information Education Communication (IEC) materials. These agricultural extension messages are usually not verified or censored and they vary in standards and quality. This leads to erroneous,

inaccurate, incomplete and biased information thus confusing the farmers. Currently, other than the Kenya Veterinary Board, there exist no credible certification and accreditation institution for agricultural extension.

Standards and guidelines for agricultural extension and advisory services were developed in 2017 by the then Ministry of Agriculture, Livestock and Fisheries in consultation with the county governments and other stakeholders. This was aimed at maintaining professionalism, harmony and consistency in the AEAS delivery targeting all agricultural sector stakeholders. However, due to absence of legal framework for enforcement the envisaged standards and quality are yet to be achieved.

2.7 Extension and Advisory Approaches and Methods

There are various extension and advisory approaches and methods currently in use.

2.7.1 Extension Approaches

Different extension providers use different extension approaches which include Demand Driven, Common Interest Group (CIG), Lead Farmer, Focal Area Approach, Farmer Field Schools (FFS), plant and veterinary clinics value chains, schools and institutional approach such as Agricultural/Pastoral Training Centers (ATCs/PTCs), 4KClubs, Farmers' Cooperative societies and Young Farmers Clubs, market-oriented extension, Small Holder Horticulture Empowerment Promotion(SHEP), Village Based Advisors(VBA), Cost-sharing Approach and Learning visits/tours.

Approaches such as the FFS, focal area and CIG are participatory in nature and more effective as these approaches move along the entire value chain. However, they have to be well facilitated and supported. Globally, market-oriented extension has frequently and appropriately become an integral part of extension activities. However, capacities and information to provide market-oriented extension are inadequate. Cost-sharing is mainly used where the public or private sector provides an input subsidy to the farmers though the approach was not sustainable.

In some cases, there has been a tendency to replicate a particular approach across different agro-ecological zones and farming systems even in instances

where they do not apply. The demand driven approach for instance ensures that a specific service requested by the client is provided, the clients are more receptive and organized. However, this approach bases on the assumption that the client knows what he needs while this may not be the case. It is often uncoordinated because of the varied demands and therefore time consuming for the extension officer who has to serve the various clients.

Similarly, inadequate multi-skilled extension service providers and low funding has led to piece-meal extension service delivery to clientele usually faced with multiple problems. Additionally, non-state service providers have come up with innovative methods that are attractive to farmers and especially the youth which combine credit, technology, good agricultural practices and social cohesion among the beneficiaries to ensure effective application of technology for increased farm productivity and sustainability.

However, the cost of some technology is relatively high in regard to access to internet, availability of electricity and complexity of utilization of ICT tools. It is also hampered by lack of a compatible gadget and low literacy levels of farmers.

The lead farmer approach is cost effective, scalable and can be duplicated in other areas. It promotes creativity, provides personalized attention to specific local needs of other farmers and clients by considering social inclusion and cohesion within the catchment areas. The lead farmer approach presents opportunity for learning by doing from fellow farmers and quickly demonstrating to follower farmers' application of promoted technologies. However, the lead farmer needs to be continually capacity build and work closely with the extension worker which ensures improved staff-farmer ratio and contributes to sustainability of extension services

With respect to the schools and institutional approach, there are 31,218 primary schools (both public and private), 10,413 secondary schools (both public and private), 90 universities (both public and private) and about 540 accredited TVETS currently in Kenya. Institutions of learning can play an important role in shaping the community's development through extension and outreach programmes. These institutions range from schools (both primary and secondary), colleges and universities. The spread of these institutions in the country provides a vast network through which information, innovations, technologies and extension services can be disseminated to the communities around them. Devising innovative extension and outreach programmes as an avenue to disseminate agricultural information to farmers within catchment areas of learning institutions

needs critical consideration. Despite the potential to utilize learning institutions for extension services provision, there are inadequate strategies for the inclusion of community outreach activities in academic calendars and curricula; a weak linkage between the institutions, the communities and agricultural sector players in addressing developmental aspirations; low budgetary allocation for outreach programmes in the institutions; and the institutions having a greater emphasis on academic excellence over evidence-based solutions to community problems that impede food and nutrition security attainment.

The group approach has ability to mobilize different persons with common interest. On the contrary, it often fails to realize expected results due to management challenges, resource mobilization constraints and competing interests. The farmer field schools, is characterized by participatory engagement, defined content, well scheduled interactions and practical implementation of skills learnt. In spite of all these benefits, only a few farmers benefit at a time. Besides this, the value chain approach promotes establishment of farmer organizations, enhances partnerships, collaboration and stakeholder engagement. It also creates direct links among the different value chain actors. However, it is often characterized by weak linkages and networking among the players. In addition, resource constraints arising from high cost of inputs, lengthy certification process and maintenance of high-quality standards weigh down the value chain actors. Climate change interferes with the production node while inadequate infrastructure affects marketing and value addition.

Field days approach brings several players together, is cost-effective since several technologies are disseminated at one point and many clients are reached. The demerits include high cost of organizing, they are time consuming and characterized by low attendance in the advent of pandemics.

Plant clinics respond to farmers' needs in good time, allows one on one engagement between the farmer and extension worker, results in safe use of pesticides and leads to reduction of pre harvest losses. On the other hand, are riddled with high cost of technology implementation, emergence of new strains of diseases, limited coverage and inadequate personnel besides being costly and time consuming.

In an attempt to skill the youth the ATVET approach has been adopted. It offers specific technical skills; curriculum can be customized to meet the industry

demands. However, there are few registered TVET institutions due to the lengthy accreditation process. Most of the institutions have inadequate facilities and facilitators, in-extensive curricula and high cost of training.

The Village-Based Advisors (VBA) approach focuses on training clientele on yield-enhancing technologies including Good Agronomic Practices (GAP) with the majority of the VBAs graduating to become agri-entrepreneurs, either becoming agro-dealers, agents of agro-dealers/seed companies or agents of off takers. The advisors deliver critical extension services, underlying their crucial role of directly improving the productivity and livelihoods of smallholder farmers. The advisors generate own income from different business lines including sale of inputs, and also as Agents of aggregation for farmers' produce. Apart from creating rural self-employment opportunities, VBAs help producers sustainably access technologies and services at the last-mile thereby reducing the distance farmers have to travel to purchase yield-enhancing inputs. The impact of the approach can be improved if VBAs have a forum for providing constant input in their achievements, challenges and vision.

Challenges facing VBA approach include lack of access to finance to expand businesses, as well as with transport to reach farmers. As a result, many VBAs are forced to reduce the number of farmers they can mobilize for training, meaning they have to make more visits to reach individual farmers.

The SHEP approach was based on two conceptual pillars that address issues related to promoting farming as a business, and empowering and motivating farmers. The approach was developed as market orientated extension methodology and enhanced the linkage between smallholder farmers and market. The success of the approach in Kenya was shared with other countries and SHEP Approach has since expanded to other countries across the world.

2.7.2 Extension Methods

In Kenya, the current extension methodologies used by different AESP include;

- i. Individual methods such as farm visits, office visits, farmer to farmer, on-farm demonstrations, e-extension, adaptive on-farm trials, agricultural information desks, technology and agro-dealer shops

- ii. Group methods include exhibitions, tours, exchange visits, trade fairs, shows, field days, e-extension, agricultural information desks and mobile training units
- iii. Mass media methods include videos, radio, television, e-extension and bulk SMSs

Group methods such as field days, exhibitions and demonstrations are widely used while the use of lead farmers and e-extension is growing. Mass media methods have a larger outreach and audience especially in rural areas though they lack the practical aspects required for the necessary learning and adoption of technology by the target clientele. In addition, they are expensive and may not be interactive in nature.

Other shortcomings arise from application of unsustainable approaches and methods such as use of handouts disguised as empowerment tools by some service providers, leading to the creation of dependency syndrome and limited client participation. Some of these approaches and methods have been fairly static, emphasizing increasing production with little regard for value addition and marketing, which are critical in transforming agriculture from subsistence to commercial enterprise.

Further, some of the approaches and methods are weak in addressing crucial issues such as governance in farmer organizations, mainstreaming cross-cutting issues, and fail to target marginalized groups. Some approaches and methods have also tended to ignore the importance of indigenous knowledge in their extension and advisory messages.

The choice of an appropriate dynamic and holistic approaches must consider client socio-economic environment, value chain, market demand, cost effectiveness, agro-ecological diversity, client resourcefulness, and that mainstream relevant cross-cutting issues.

2.7.3 Extension Content and Messages

Currently, EASPs at different levels rarely develop dynamic, standard and comprehensive extension packages thus not impacting nor improving adoption of technologies. Ideally, agricultural extension contents and messages must centre on clientele's socio-economic status and key cross-cutting issues such as,

among others, social inclusivity, nutrition sensitive agriculture, climate change, food safety, drug and substance abuse and emerging pests and diseases. This is in addition to undertaking farming as a business and beginning with the markets first in order to transform agriculture from subsistence to commercialization.

2.8 Cross-cutting Issues in Delivery of Agricultural Extension Services

Extension services are impacted by cross-cutting issues that contribute to the development of holistic environment for agricultural communities. Some of the cross-cutting issues include: human diseases like Covid-19 and HIV/AIDS; social inclusivity of gender, youth and persons living with disabilities; drug and substance abuse and climate change.

Human diseases have affected extension service delivery by limiting mobility where certain extension methods such as face to face would be more effective. Inclusivity is a challenge in extension service in that women, youth and persons living with disabilities have not been given sufficient consideration. Women play a pivotal role in agricultural production yet their access to agricultural information and resources is limited. In recognition of gender mainstreaming as key in agricultural sector development, the Ministry responsible for Agriculture put in place initiatives to ensure that gender issues are integrated into policies and development programmes. The project on Enhancing Gender Responsive Extension Services in Kenya (PEGRES 2014 - 2017) developed a gender mainstreaming package and other documents to guide gender mainstreaming in the agriculture sector. Youth involvement in agriculture is low due to limited knowledge and resources for investment in agricultural activities. In addition, the extension approaches and methods used are not youth friendly.

Farmers face significant losses in the current environment as a result of hazards and shocks such as floods, drought, animal and crop pests' invasion and diseases. Mitigation efforts in the aftermath of such disasters have been reactive rather than proactive. In most cases provision of extension services has not put emphasis on environmental conservation as a key component of production. In the current scenario, environmental concerns are mainly integrated in specific donor-funded programmes which lead to limited interventions that mitigate against climate change effects on agricultural productivity.

Drug and substance abuse by some extension workers and targeted clientele affects extension service delivery and agricultural production. It affects the work place and make workers unable to carry out their duties. In addition, it is related to petty crime where victims become corrupt and steal in order to access money for buying drugs.

CHAPTER THREE: POLICY OBJECTIVES AND INTERVENTIONS

3.1 Agricultural Extension Policy Focus

3.1.1 Overall Objective

The broad objective is to achieve an effective, efficient and sustainable agricultural extension and advisory services for increased agricultural productivity, food and nutrition security, incomes and improved welfare of value chain actors.

3.1.2 Specific Objectives

The specific objectives of the policy are to:

- i. Establish a framework for developing and managing human resources, and infrastructure to facilitate efficient capacity utilization in agricultural extension provision
- ii. Enhance knowledge management system for efficient and effective extension service delivery
- iii. Strengthen research-extension-clientele linkages in agricultural sector
- iv. Establish a pluralistic and coordinated approach for the provision of extension and advisory services by public, private and non-profit organizations
- v. Create a conducive legal, regulatory and institutional framework that facilitates coordination and regulation of agricultural extension services
- vi. Promote professionalism and ensure quality in the delivery of Agricultural Extension Services



- vii. Promote effective, efficient and sustainable technology transfer to agricultural extension to meet the needs of clientele in order to improve production and productivity
- viii. Mainstream cross-cutting issues in provision of extension services

3.2 Core Guiding Principles

- i. Productivity and income generation
- ii. Social inclusivity and equity
- iii. Pluralism and integration of extension approaches
- iv. Demand driven and market-oriented extension
- v. Coordination, collaboration and partnership
- vi. Foster sustainability

3.3 Challenges and Policy Interventions

3.3.1 Capacity in Extension Service Delivery

To address the issues of capacity in extension service delivery, this Policy will look at the challenges in human resource capacity, infrastructure and funding and provide the strategic policy interventions to adequately address the challenges.

a. Human Resource Capacity

Challenges

- i. Aging agricultural extension workforce and low staffing levels in both public and private extension service providers resulting in a low extension staff to farmer ratio

- ii. Low levels of specialized skills and scope of knowledge for extension delivery
- iii. Inadequate institutional capacity to train personnel (extension providers and researchers) on important emerging issues such as organic farming, biotechnology, and the characterization and selection of indigenous plants and animals of socio-economic importance
- iv. Low enrollment by the youth to agriculture related courses

Policy interventions

The National Government will:

- i. Provide technical assistance and capacity building to the County Governments and private sector for effective extension provision
- ii. Support institutions in extension curriculum review to meet emerging trends, technology and innovations
- iii. Strengthen capacity of public institutions to offer continuous training on extension
- iv. Develop training and learning materials

The County Governments will:

- i. Undertake recruitment of extension officers for enhanced extension service delivery
- ii. Provide an enabling environment for provision of extension by the private sector and non-state actors
- iii. Promote innovative agricultural extension service provision

The National and County Governments will:

- i. Support in-service trainings, internships and other incentives for staff professional development and pre-service training of youths
- ii. Promote and support market oriented, innovative and profitable investment opportunities for the youth in agriculture

b. Infrastructure

Challenges

- i. Outdated or unserviceable infrastructure
- ii. Inadequate infrastructure such as buildings and offices, equipment, transport facilities and ICT
- iii. Insufficient utilization of existing infrastructure

Policy Interventions

The National Government will:

- i. Promote development of agricultural extension infrastructure
- ii. Develop programmes that support the development of extension service infrastructure in the Counties
- iii. Support provision of ICT infrastructure and equipment

The County Government will:

- i. Acquire, modernize and maintain agricultural extension infrastructure
- ii. Support private sector engagement in upgrading of infrastructure

c. Funding

Challenges

- i. Inadequate investment in agricultural extension service.

Policy Interventions

The National Government will:

- i. Promote cost sharing and commercialization of extension services for value chains and actors able to pay for the services
- ii. Ensure that national programmes have an extension component
- iii. Provide conditional grants to the Counties to enhance extension service provision

- iv. Support funding of public extension and advisory service targeting the vulnerable.
- v. Promote private investment in agricultural extension.

The County Governments will:

- i. Implement cost sharing and commercialization of extension services.
- ii. Increase resources allocation and disbursement to public extension services
- iii. Support private sector investment in agricultural extension
- iv. Put in place mechanisms for cascading down the funding of extension services up to the ward levels

3.3.2 Knowledge management

Enhanced knowledge management system improves the quality of management decisions making by ensuring reliable and secure knowledge, information and data availability across the sector. It also enables service providers to be more efficient and improve quality of service provided. Below are the main challenges and policy interventions to enhance knowledge management in the agriculture sector.

Challenges:

- i. Uncoordinated and fragmented data management system in the agriculture sector
- ii. Weak institutional mechanisms for knowledge management among institutional actors
- iii. Inadequate use of innovative and digital-based knowledge management

Policy Interventions

The National Government will

- i. Establish a National framework for a coordinated and integrated data and knowledge management system



- ii. Strengthen institutional framework for knowledge management among sector actors.

The County Government will;

- i. Operationalize the framework for a coordinating and integrating data and knowledge management at the County level

The National and County Government will;

- i. Promote innovative and digital-based knowledge management systems

3.3.3 Research-Extension-Client Linkages

Research-extension-client-linkages provide the required interaction and exchange of agricultural research information and feedback from clients /end users. The challenges and interventions in these linkages are as follows;

Challenges;

- i. Inadequate interaction and exchange of agricultural research information and feedback
- ii. Absence of a national institutional frameworks for research-extension-clientele linkages
- iii. Weak regional institutional frameworks for research extension clientele linkages

Policy Intervention

The National Government will;

- i. Institutionalize and strengthen National frameworks for research-extension-clientele linkages
- ii. Support the capacity building of county institutional frameworks

The County Governments will;

- i. Support priority research agenda setting and coordinate feedback from County

- ii. Institutionalize and strengthen county frameworks for research-extension clientele linkages

The National and County Governments will;

- i. Create an enabling environment to facilitate research-extension-clientele linkages by both public and private sector

3.3.4 Partnership, Collaboration and Coordination

Challenges

- i. Inadequate coordination of actors in Advisory Extension Service Delivery
- ii. Inadequate capacity in the institutions that coordinate advisory and extension Service delivery
- iii. Lack of a framework for partnerships and collaboration

Policy Interventions

Both the National and County Governments will;

- i. Strengthen the institutional mechanisms for partnership, collaboration and coordination
- ii. Strengthen linkages to global and region fora for extension and advisory services
- iii. Build capacity for the AEAS coordinating institutions

The County Governments will;

- i. Institutionalize the County coordination and cooperation mechanism



3.3.5 Policy, Legal, Regulatory and Institutional framework for Extension and advisory Services

Challenges

- i. Inadequate legal and institutional frameworks to guide ESPs in the provision of extension services

Policy Intervention

The National and County Governments will:

- i. Establish a legal and institutional framework that guide in the provision of extension services

3.3.6 Extension Standards and Quality Assurance

Challenges;

- i. The services rendered vary in quality and do not conform to the set standards
- ii. Inadequate accreditation and certification of agriculture extension service providers
- iii. Lack of formal guidelines governing code of ethics for extension service provision

Policy Intervention

The National Government will:

- i. Set standards and enforce standards and quality assurance for extension service providers, improve professionalism, certify, accredit and monitor performance

The County Governments will:

- i. Enforce and ensure compliance of standards and monitor performance of extension service providers

3.3.7 Extension and Advisory Approaches and Methods

Challenges

- i. Inadequate integration extension approaches and methodology
- ii. Limited access to ICT hardware, software and skills for e-extension
- iii. Inappropriate deployment of agricultural extension approaches and methods
- iv. Underutilization of the potential to utilize learning institutions for extension services provision

Policy Interventions

The National and County governments will:

- i. Promote integrated extension approaches and methodologies
- ii. Support the development of digital extension in public and private sector
- iii. Devise innovative extension and outreach programmes as an avenue to disseminate agricultural information within catchment areas of learning institutions
- iv. Specifically target Nutrition sensitive messaging

The County Governments will:

- v. Promote sustainable extension approaches and methods taking into consideration specific County context
- vi. Support access to ICT hardware and software for agricultural extension

- vii. Develop a mechanism that addresses the extension needs of various clientele
- viii. Support dissemination of agricultural information and technology through learning institutions

3.3.8 Cross-cutting Issues in Delivery of Agricultural Extension Services

Cross-cutting issues encompass aspects that impact on the delivery of extension services directly or indirectly. The interventions will aim at mainstreaming and dissemination of knowledge on cross-cutting issues in agricultural extension.

3.3.8.1 Human Diseases

Challenges

- i. Limited mobility where certain extension methods such as face to face would be more effective

Policy Intervention

The National Government will:

- i. Develop framework for management of human diseases affecting agricultural extension
- ii. Promote research on impacts of human diseases on agricultural extension
- iii. Mainstream human diseases prevention and control information in extension messaging

The County Government will:

- i. Support implementation of social inclusivity in agricultural extension
- ii. Implement affirmative programmes for persons affected by human diseases

The National and County Governments will:

- iii. Establish affirmative programmes for persons affected by certain human diseases

3.3.8.2 Social Inclusivity

Challenges

- i. Limited inclusivity in gender, youth and persons living with disabilities
- ii. The youth have limited access to agricultural production factors such as land, information and financial resources
- iii. Limited gender sensitive technologies and interventions in extension approaches and methods

Policy Interventions

The National Government will:

- i. Promote social inclusivity in agricultural extension
- ii. Promote access to factors of production to the youth
- iii. Influence development and dissemination of gender-sensitive technologies and interventions

The County Government will:

- i. Support implementation of social inclusivity in agricultural extension
- ii. Support youth access to factors of production
- iii. Facilitate the development and dissemination of gender-sensitive technologies

3.3.8.3 Drug and Substances abuse

Challenges

- i. Limit productivity of the agricultural extension work force
- ii. Limit the adoption of the extension information

Policy Intervention

The National Government will:

- i. Promote awareness creation and sensitization programmes on drug and substance abuse
- ii. Promote rehabilitation of agricultural sector workforce affected by drugs and substance

The County Government will:

- i. Support implementation of awareness and sensitization programmes on drug and substance abuse
- ii. Support the rehabilitation of agricultural sector workforce affected by drugs and substance

3.3.8.4 Climate Change

Challenges

- i. Unpredictable impact of climate change limits extension information
- ii. Hinder timely delivery of extension services in case of physical extension approaches
- iii. Limits the adoption of technologies

Policy Intervention

The National Government will:

- i. Promote development and dissemination of information on early warning signs and disaster preparedness
- ii. Promote innovative ways of extension information delivery
- iii. Promote climate change initiatives

The County Government will:

- i. Support development and dissemination of information on early warning signs and disaster preparedness
- ii. Implement innovative extension information delivery
- iii. Promote Climate Smart technologies and innovations

CHAPTER FOUR: POLICY IMPLEMENTATION AND COORDINATION

The implementation framework of the KASEP Policy will incorporate an integrated approach, joint planning and regular joint reviews of progress. A five –year strategy will be developed to implement the policy. The policy provides for a coordination mechanism through establishment coordination structure.

4.1 KASEP Implementation Coordination Mechanism

4.1.1 National Level

The coordination of implementation of this policy will be based on current and existing sectoral implementation and coordination structures with an apex being policy organs. This policy recognizes that extension provision is a devolved function while policy, capacity building and technical advice to the counties remain national government responsibilities. The principal actors for the achievement of the policy objectives are national institutions, Council of County Governors, County governments, other statutory bodies, agricultural sector education and training institutions, national producer organizations, non-state actors and the private sector.

The policy implementation process will be phased in short, medium and long term implementation plans. Short term plans will focus on immediate interventions required to support the agriculture sector through extension and advisory services while the medium and long term implementation will focus on advising the counties on suggested interventions to transform the current structure of the extension system to address shortcomings identified through the policy analysis and development process.

4.1.2 County Level

Extension and advisory provision coordination forums will be established at the County level in consultation with relevant stakeholders to bring together all extension and advisory service providers in a coherent grouping in addition to producer associations. The forums will articulate priorities, outline the coordination of policy implementation planning and action with regard to the provision of extension and advisory services in the designated geographic area. This will help local interest groups secure advice and support from other levels. The creation of these policy implementation and coordination forums will be county specific but shall have linkage to the coordination mechanism for the agricultural sector at the County level.

4.2 Financing and Investments for Agricultural Extension

To implement the Kenya Agricultural Sector Extension Policy, the funding by the National and County governments through the exchequer will be provided to the relevant Ministries, Departments and Agencies (MDAs). Mobilization of technical and financial support from development partners to realize the objectives of this policy will also be done. Direct financing and investments by the private sector will be critical to the successful implementation of the Kenya Agricultural Extension Policy. The National and County governments will create conducive environments to facilitate participation of the private sector in the agriculture sector extension.

4.3 Monitoring, Evaluation and Review of Policy

An effective policy implementation tracking framework will be developed to monitor implementation of the policy and assess timely delivery of policy objectives to ensure that they are achieved in a cost effective, coordinated and harmonized manner at all levels. The policy implementation tracking framework will employ

participatory approaches including mutual accountability systems to determine progress towards implementation of agreed and prioritized policy interventions and the realization of policy objectives based on the policy implementation matrix provided in (Annex 1) of the policy. The policy implementation matrix will be unbundled to develop annual rolling work plans and intervention tracking matrices for the various thematic areas targeted for implementation.

The data and information emanating from the policy implementation tracking matrix and the yearly work plans will constitute evidence for policy review and decision making. Based on implementation progress, the policy will be reviewed periodically to address emerging issues and policy implementation challenges. The policy implementation tracking framework is expected to have clear terms of reference for relevant stakeholders in data collection and reporting at all levels.

4.4 Communication Strategy

For the successful implementation of the policy a well-structured and executed communication strategy and plan is required. Communication will enable an effective information flow between the National and County governments, within the National government, among County governments, between both levels of government and the private sector, non-state actors, farmers, the public, media and other actors in the ecosystem.

A well-structured and executed communication framework will also provide opportunities for public dialogue and knowledge sharing for decision making and evidence-based planning at all levels. A communication framework for implementation of the policy will be developed in collaboration with the relevant stakeholders in the Extension and Advisory services system. The communication strategy will be reviewed from time to time in order to improve its efficiency and effectiveness.

ANNEX 1: IMPLEMENTATION FRAMEWORK

The timelines - Short-term (≤ 2 years), Medium-term (2-5 years), Long-term (>5) and Continuous

Thematic Area 1: Capacity in Delivery of Extension Services				
Specific Policy Objective Establish a framework for developing and managing human resources, and infrastructure to facilitate efficient capacity utilization in agricultural extension provision				
Policy Interventions	Expected Outputs	Expected Outcomes	Lead/Key Responsible Institutions	Timeline
a. Human Resource Capacity				
i. Provide technical assistance and capacity building to the County Governments for effective extension provision	Technical assistance and capacity building provided	County Governments technical expertise enhanced	National Government Council of County Governors Relevant public and private agricultural training institutions	Medium term to Long term
ii. Support institutions in extension curriculum review to meet emerging trends, technology and innovations.	Extension curriculum supported	Relevant curriculum developed	National Government Council of County Governors Relevant stakeholders	Short-Term to Medium Term
iii. Strengthen capacity of public institutions to offer continuous training on extension	capacity of public institutions strengthened	Efficient and continuous training on extension	National Government KALRO, NRF, NACOSTI	Short Term to Medium term

Thematic Area 1: Capacity in Delivery of Extension Services				
Specific Policy Objective Establish a framework for developing and managing human resources, and infrastructure to facilitate efficient capacity utilization in agricultural extension provision				
Policy Interventions	Expected Outputs	Expected Outcomes	Lead/Key Responsible Institutions	Timeline
iv. Develop training and learning materials and guidelines	Training and learning material and guidelines developed	Updated training content and syllabus	National Government KICD Commission for University Education (CUE)	Medium to long term
v. Support in-service trainings and other incentives for effective extension provision at the county	In-service trainings and other incentives provided	Effective extension provision at the County	County Government Relevant stakeholder	Medium to Long term
vi. Support the recruitment of extension officers and specialized skills personnel for enhanced extension service delivery	recruitment of extension officers and specialized skills personnel enhanced	Enhanced extension service delivery	County Government Relevant stakeholder	Medium to Long term
vii. Provide an enabling environment for provision of extension by the private sector and other actors	enabling environment for provision of extension created	Enhanced extension service delivery	County Government Relevant stakeholder	Medium to Long term

Thematic Area 1: Capacity in Delivery of Extension Services				
Specific Policy Objective				
Establish a framework for developing and managing human resources, and infrastructure to facilitate efficient capacity utilization in agricultural extension provision				
Policy Interventions	Expected Outputs	Expected Outcomes	Lead/Key Responsible Institutions	Timeline
b. Funding				
i. Promote cost sharing and commercialization of extension services for value chains and actors able to pay for the services	Increased facilitation for provision of extension services	Extension services improved	National Government Council of County Governors Relevant stakeholder	Medium to Long term
ii. Support funding of public extension and advisory service targeting the vulnerable	Funding of public extension and advisory service availed	public extension and advisory service targeting the vulnerable supported	National Government Council of County Governors Relevant stakeholder	Medium to Long term
iii. Promote private investment in agricultural extension.	Agricultural extension service funds available and accessible	Effective and efficient Agricultural extension service delivered	National Government Council of County Governors Relevant stakeholders	Short to medium term
iv. Implement cost sharing and commercialization of extension services	cost sharing and commercialization of extension services Implemented	Agricultural extension service enhanced	County Government	Medium to Long term

Thematic Area 1: Capacity in Delivery of Extension Services				
Specific Policy Objective	Establish a framework for developing and managing human resources, and infrastructure to facilitate efficient capacity utilization in agricultural extension provision			
Policy Interventions	Expected Outputs	Expected Outcomes	Lead/Key Responsible Institutions	Timeline
v. Increase resources allocation and disbursement to public extension services	public extension services increase	public extension services enhanced	County Government	Medium to Long term
vi. Support private sector investment in agricultural extension	Private sector investments supported	Increase private sector involvement in agricultural extension	County Government	Medium to Long term
vii. Put in place mechanisms for cascading down the funding of extension services up to the ward levels.	Mechanisms for cascading down the funding of extension developed	Funds availed at the ward level	County Government	Medium to Long term
c. Infrastructure				
i. Establish a mechanism for maintenance of agricultural extension infrastructure and equipment.	Maintenance mechanisms of agricultural infrastructure put in place	Agricultural infrastructure and equipment maintained.	County Government	Medium to Long term
ii. Promote development of agricultural extension infrastructure	agricultural extension infrastructure developed	Efficient and effective delivery of extension services	National Government Council of County Governors Relevant stakeholders.	Medium to Long term

Thematic Area 1: Capacity in Delivery of Extension Services				
Specific Policy Objective				
Establish a framework for developing and managing human resources, and infrastructure to facilitate efficient capacity utilization in agricultural extension provision				
Policy Interventions	Expected Outputs	Expected Outcomes	Lead/Key Responsible Institutions	Timeline
iii. Develop programmes that support the development of extension service infrastructure in the Counties	programmes that support the development of extension service infrastructure in the Counties developed	extension service infrastructure availed	National Government Relevant stakeholders.	Medium to Long term
iv. Support the provision of ICT infrastructure and equipment.	ICT infrastructure and equipment availed	Digital extension promoted	National Government Council of County Governors Relevant stakeholders.	Medium to Long term
v. Acquire, modernize and maintain agricultural extension infrastructure	agricultural extension infrastructure acquired, modernized and maintained	Improved infrastructure for extension service	County Government Relevant stakeholders.	Medium to Long term
vi. Support private sector extension infrastructure development.	Private sector involved in extension infrastructure development	Improved infrastructure for extension service delivery	County Government Relevant stakeholders.	Medium to Long term

Thematic Area 2: Knowledge Management				
Specific Policy Objective				
Enhance knowledge management system for efficient and effective extension service delivery				
Policy Interventions	Expected Outputs	Expected Outcomes	Lead/Key Responsible Institutions	Timeline
i. Establish a National framework for a coordinated and integrated data and knowledge management system	National framework for a coordinated and integrated data and knowledge management system developed	Enhanced coordination and integration of data and knowledge using a system	National Government Council of County Governors Relevant stakeholders	Long-term
ii. Strengthen institutional mechanisms for knowledge management among sector actors	A Coordinated and integrated knowledge management in use Platform on integrated knowledge management established	Efficient and effective knowledge management systems	National Government Ministry responsible for agriculture Council of County Governors	Long- term
iii. Operationalize the framework for a coordinating and integrating data and knowledge management at the County level	Framework for coordination and integration of data and knowledge management operationalized	Coordinated and integrated data and knowledge management system	National Government Council of County Governors Relevant stakeholders	Short to medium term
iv. Promote innovative and digital-based knowledge management systems	Innovative and digital-based knowledge management systems developed	Enhanced use of digital-based knowledge management	National Government and County Government	Short to medium term

Thematic Area 3: Research-Extension Producer Linkages					
Specific Policy Objective					
Strengthen Research Extension Clientele Linkages in agricultural sector					
Policy Interventions	Expected Outputs	Expected Outcomes	Lead/Key Responsible Institutions	Timeline	
i. Create an enabling environment to facilitate research-extension-client linkages by both public and private sector	Research extension linkage coordination system strengthened	Enhanced research dissemination and feedback	National Government Council of County Governors JASCCOM Council of Governors CASSCOM Private and Public Researchers Universities Other relevant stakeholders	Medium - term	
ii. Establish and strengthen institutional frameworks for research-extension-client linkages	Inclusive, participatory and consultative mechanism of research extension client linkages established	Research demand driven and appropriate technology developed Timely and relevant market-led information availed	National Government Council of County Governors JASCCOM Council of Governors CASSCOM Private and Public Researchers Universities Other relevant stakeholders	Short term	
iii. Support priority research agenda setting and coordinate feedback from county	Priority research agenda setting supported and feedback coordinated	Research-extension-clientele linkage strengthened	County Government Other relevant stakeholders	Short term	

Thematic Area 4: Partnership, Collaboration and Coordination				
Specific Policy Objective	Ensure a pluralistic and coordinated approach for the provision of extension and advisory services by public, private and non-profit organizations			
Policy Interventions	Expected Outputs	Expected Outcomes	Lead/Key Responsible Institutions	Timeline
i. Strengthen the institutional mechanisms for partnership, collaboration and coordination	A framework for partnership, collaboration and coordination developed	Partnership, collaboration and coordination enhanced	National and County Governments Other stakeholders	Short Term
ii. Build capacity for AES coordinating institutions	Capacity for AES coordinating institutions enhanced	Efficiency in the AES coordinating institutions enhanced	National and County Governments Other stakeholders	Continuous
iii. Institutionalize the County coordination and cooperation mechanism	A framework for coordination and cooperation at the county level legalized	Coordination and collaboration at the county level enhanced Enhanced efficiency in resource utilization	National and County Governments Other stakeholders	Medium-term

Thematic Area 5: Policy, Legal, Regulatory and Institutional Framework				
Specific Policy Objective				
To create a conducive legal, regulatory and institutional framework that facilitates coordination and regulation of agricultural extension services				
Policy Interventions	Expected Outputs	Expected Outcomes	Lead/Key Responsible Institutions	Timeline
i. Establish a legal and institutional framework that guide in the provision of extension services	Extension service providers regulated	A well-coordinated and regulated and extension service	National Government County Government Stakeholders	Short-term
Thematic Area 6: Extension Standards and Quality Assurance				
Specific Policy Objective				
Promote professionalism and ensure quality in the delivery of Agricultural Extension Services				
Policy Interventions	Expected Outputs	Expected Outcomes	Lead/Key Responsible Institutions	Timeline
i. Establish mechanisms that will set standards and enforce standards and quality assurance for ESPs, improve professionalism, certify, accredit and monitor performance.	A mechanism that sets and enforce standards and quality assurance for ESPs established. Updated guidelines on standards and quality assurance in place	Professionalism, harmony and consistency in the AES delivery maintained	National Government County Government Office of the Attorney General Council of County Governors	Medium-term

Thematic Area 7: Extension and Advisory Approaches and Methods				
Specific Policy Objective	To ensure effective, efficient and sustainable technology transfer to agriculture extension to meet the needs of clientele in order to improve agricultural production and productivity			
Policy Interventions	Expected Outputs	Expected Outcomes	Lead/Key Responsible Institutions	Timeline
i. Promote an integrated approach and extension methods in AES	A critical mass of AES end user reached	Improved efficiency and effectiveness of extension and advisory services	National and County Governments Other stakeholders	Medium-term
ii. Support the development of digital extension in public and private sector	Digital extension platforms established Access to agricultural information and technology to end users enhanced	Enhanced knowledge and skills	National Government Council of County Governors Other stakeholders	Medium-term
iii. Provide for sustainable approaches taking consideration specific County context	Access to agricultural information and technology increased	Improved knowledge and skills	County Governments Other stakeholders	Continuous
iv. Support access to ICT hardware and software	Use of ICT in extension supported	Enhanced access to ICT and software	County Governments Other stakeholders	Short to medium term
v. Devise innovative programmes to disseminate agricultural information and technology within catchment areas of learning institutions devised	Agricultural information and technology dissemination programmes through learning institutions devised	Increased information dissemination	National Government Council of County Governors	Continuous

Thematic Area 7: Extension and Advisory Approaches and Methods				
Specific Policy Objective	To ensure effective, efficient and sustainable technology transfer to agriculture extension to meet the needs of clientele in order to improve agricultural production and productivity			
Policy Interventions	Expected Outputs	Expected Outcomes	Lead/Key Responsible Institutions	Timeline
vi. Support dissemination of agricultural information and technology through learning institutions	Agricultural information and technology dissemination programmes through learning institutions supported	Improved knowledge and skills	County Government Other stakeholders	Continuous

Thematic Area 8: Cross-Cutting Issues					
Specific Policy Objective					
Mainstream cross-cutting issues in provision of extension services					
Policy Interventions	Expected Outputs	Expected Outcomes	Lead/Key Responsible Institutions	Timeline	
i. Promote research on pandemics	research on pandemics promoted	Cross cuttings issues mainstreamed in extension	National Government	Continuous	
ii. Develop framework for agricultural extension	framework for agricultural extension developed	Cross cuttings issues mainstreamed in extension	National Government Council of County Governors	Continuous	
iii. Establish affirmative programmes for persons affected by diseases	Affirmative programmes for persons affected by diseases developed	Cross cuttings issues mainstreamed in extension	National Government Council of County Governors	Continuous	
iv. Implement affirmative programmes for persons affected by diseases	Affirmative programmes for persons affected by diseases implemented	Cross cuttings issues mainstreamed in extension	County Governments	Continuous	
Social Inclusivity					
i. Promote social inclusivity in agricultural extension	social inclusivity in agricultural extension	Cross cuttings issues mainstreamed in extension	National Government	Continuous	

Thematic Area 8: Cross-Cutting Issues

Specific Policy Objective	Mainstream cross-cutting issues in provision of extension services			Timeline
Policy Interventions	Expected Outputs	Expected Outcomes	Lead/Key Responsible Institutions	Timeline
ii. Promote access to factors of production to the youth	Youths access to factors encouraged	Cross cuttings issues mainstreamed in extension	National Government	Continuous
iii. Influence development and dissemination of gender-sensitive technologies and interventions	gender-sensitive technologies and interventions developed	Cross cuttings issues mainstreamed in extension	National Government	Continuous
iv. Support implementation of social inclusivity in agricultural extension	social inclusivity in agricultural extension enhanced	Cross cuttings issues mainstreamed in extension	County Governments	Continuous
v. Support youth to access to factors of production	Youths access to factors encouraged	Cross cuttings issues mainstreamed in extension	County Governments	Continuous
vi. Facilitate the development and dissemination of gender-sensitive technologies	gender-sensitive technologies and interventions disseminated	Cross cuttings issues mainstreamed in extension	County Governments	Continuous

Thematic Area 8: Cross-Cutting Issues				
Specific Policy Objective				
Mainstream cross-cutting issues in provision of extension services				
Policy Interventions	Expected Outputs		Expected Outcomes	Lead/Key Responsible Institutions
Drug and Substances abuse				
i. Promote awareness creation and sensitization programmes on drug and substance abuse	Awareness and sensitization programmes on drug and substance abuse promoted		Cross cuttings issues mainstreamed in extension	National Government
ii. Promote rehabilitation of agricultural sector workforce affected by drugs and substance	agricultural sector workforce affected by drugs and substance rehabilitated		Cross cuttings issues mainstreamed in extension	National Government
iii. Support implementation of awareness and sensitization programmes on drug and substance abuse	Awareness and sensitization programmes on drug and substance abuse implemented		Cross cuttings issues mainstreamed in extension	County Governments
iv. Support the rehabilitation of agricultural sector workforce affected by drugs and substance	agricultural sector workforce affected by drugs and substance rehabilitated		Cross cuttings issues mainstreamed in extension	County Governments

Thematic Area 8: Cross-Cutting Issues					
Specific Policy Objective					
Mainstream cross-cutting issues in provision of extension services					
Policy Interventions	Expected Outputs	Expected Outcomes	Lead/Key Responsible Institutions	Timeline	
Climate Change					
i. Promote development and dissemination of information on early warning signs and disaster preparedness	Information on early warning signs and disaster preparedness developed	Cross cuttings issues mainstreamed in extension	National Government	Continuous	
ii. Promote innovative ways of extension information delivery	innovative ways of extension information delivery promoted	Cross cuttings issues mainstreamed in extension	National Government	Continuous	
iii. Promote climate change initiatives	climate change initiatives promoted	Cross cuttings issues mainstreamed in extension	National Government	Continuous	
iv. Support development and dissemination of information on early warning signs and disaster preparedness	information on early warning signs and disaster preparedness developed	Cross cuttings issues mainstreamed in extension	County Governments	Continuous	
v. Implement innovative extension information delivery	Innovative extension information delivery implemented	Cross cuttings issues mainstreamed in extension	County Governments	Continuous	
vi. Promote Climate Smart technologies	Climate Smart technologies promoted	Cross cuttings issues mainstreamed in extension	County Governments	Continuous	

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