REPUBLIC OF KENYA **GOVERNMENT OF MAKUENI COUNTY**

MAKUENI APICULTURE VALUE CHAIN DEVELOPMENT STRATEGY

2024-2028

MAKUENI APICULTURE VALUE CHAIN DEVELOPMENT STRATEGY

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FOREWARD

The Department of Agriculture, Livestock, Fisheries and Cooperative Development envisions a secure and wealthy county anchored on innovative, commercially-oriented and competitive Apiculture sector capable of creating jobs and uplifting the living standards of the Makueni people. The focus of the strategy is a shift from subsistence to commercial Apiculture through modernization of on-farm beekeeping and input markets; value addition and enhanced market access creation of meaningful jobs that target and retain the youth. To achieve this, the strategy has prioritized the county's value chain based on income potential and dietary diversity, competitiveness, and county priorities.

The apiculture industry is an important sector in the county's economy as it creates job opportunities for many beekeeping households, artisans, traders, other value chain actors. All the 30 wards in Makueni have people practicing beekeeping. The bee industry value chain is a significant income earner in the county. The leading Sub counties in honey production is Kibwezi East,Kibwezi west and Mbooni.

Despite the importance and potential of apiculture in the county's economy, honey production has remained low. Productivity per hive per year between 2014 and 2023 averaged 14.3 kgs against a potential of 25 kgs. This low production is attributed to several factors that include inadequate knowledge and skills on honey production, limited access to modern bee-keeping equipment, inadequate credit facilities, and a declining bee forage base.

This Makueni Apiculture Value Chain Development Strategy has been developed to guide the transformation of the industry into a viable, modern and commercial industry. The strategy focuses on four broad investment areas to achieve its goal namely: Increasing production and productivity of the hives; Strengthening the capacity of various institutions involved in the value chain; Increasing access to structured markets and; Promoting hive products- based cottage industries. These interventions will go a long way in the development of the value chain.

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Joyce Mutua
County Executive Committee Member
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PREFACE

The Department of Agriculture, Livestock, Fisheries and Cooperative Development envisions a secure and wealthy county anchored on innovative, commercially-oriented and competitive agriculture sector capable of creating jobs and uplifting the living standards of the Makueni people. The Agricultural Sector Growth and Transformation Strategy (ASTGS 2019 -2029), which was developed by stakeholders to guide the transformation and modernization of agriculture postulates that food security requires a vibrant, commercial and modern agricultural sector that will support the country's economic development sustainably.

The focus of the strategy is a shift from subsistence to commercial agriculture through modernization of on-farm production and input markets; value addition along value chains and creation of meaningful jobs that target and retain the youth. To achieve this, the strategy has prioritized the county's value chains based on their income potential and dietary diversity, competitiveness, and county priorities beyond food production.

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Department of Agriculture,Livestock ,Fisheries and Cooperative Development


ACKNOWLEDGEMENT

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ABBREVIATIONS AND ACRONYMS.

AFA	Agriculture and Food Authority
APK	Apiculture Platform of Kenya
ABIRI	Apiculture and other Beneficial Insect Research Institute
B2B	Business-to-Business Linkages
DLP	Director of Livestock Production
DVS	Director of Veterinary Services
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FPEAK	Fresh Produce Exporters Association of Kenya
GAP	Good Agricultural Practices
GCC	Gulf Council Countries
Ha	Hectares
HCD	Horticultural Crops Directorate
ICIPE	International Center for Insects, Physiology, and Ecology
ICT	Information Communication Technology
ITC	International Trade Center
KALRO	Kenya Agriculture and Livestock Research Organization
KCSAP	Kenya Climate Smart Agriculture Project
KEBS	Kenya Bureau of Standards
KENGAP	Kenya - Good Agricultural Practices
KEPHIS	Kenya Plant Health Inspectorate Services
MoALD	Ministry of Agriculture & Livestock Development
MT	Metric Tonne
NAVCDP	National Agricultural Value Chain Development Project
NBI	National Beekeeping Institute
PCPB	Pest Control Products Board
PO	Producer Organization
PPP	Public-Private-Partnership
UAE	United Arabs Emirates

MAKUEN COUNTY APICULTURE VALUE CHAIN DEVELOPMENT STRATEGY

CHAPTER 1

1.0. INTRODUCTION AND BACKGROUND

1. According to FAO, the current global honey production in 2021 was about 1.77 million metric tons (MT). The Asian continent is the leading honey producer in the world, with about 859,000 MT accounting for 48% of the global honey production, followed by Europe, which has about 383,000 MT. Africa ranked fourth among the continents, with about 151,000 MT of honey produced. China is the world's leading honey producer, with about 472,700 MT of honey, followed by Turkey, with about 92,000 MT (Figure 1).

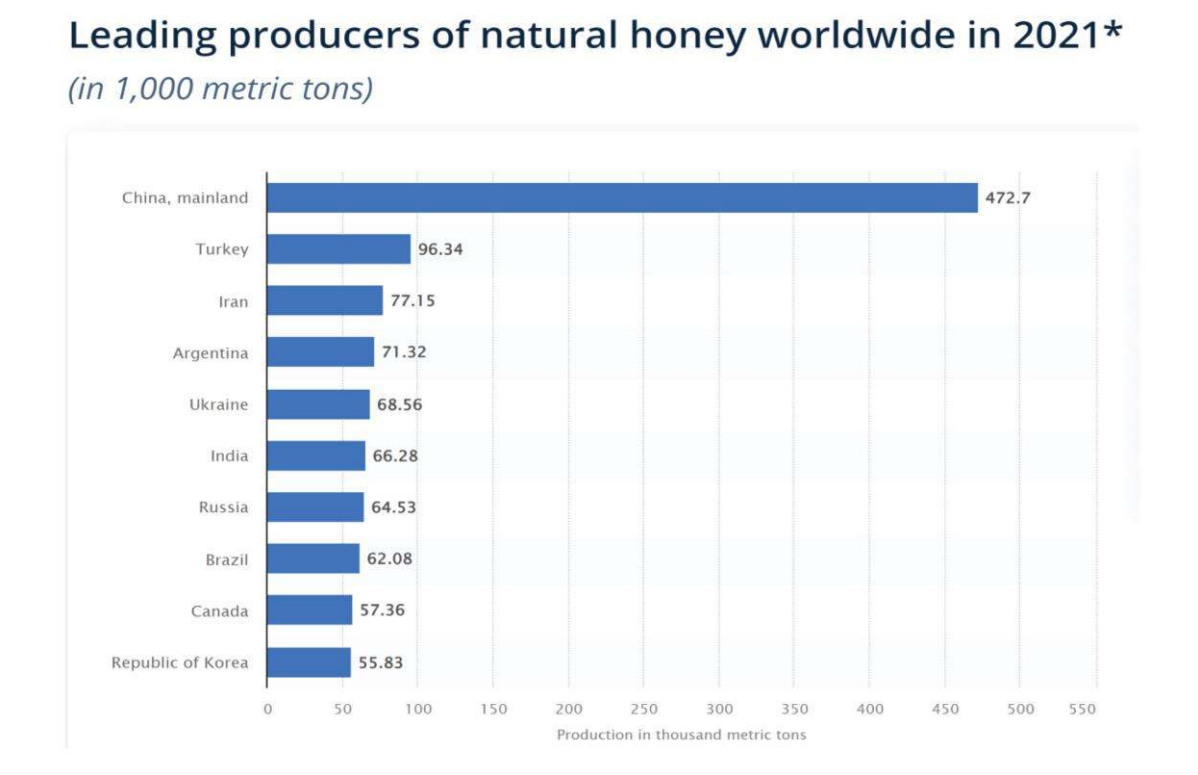
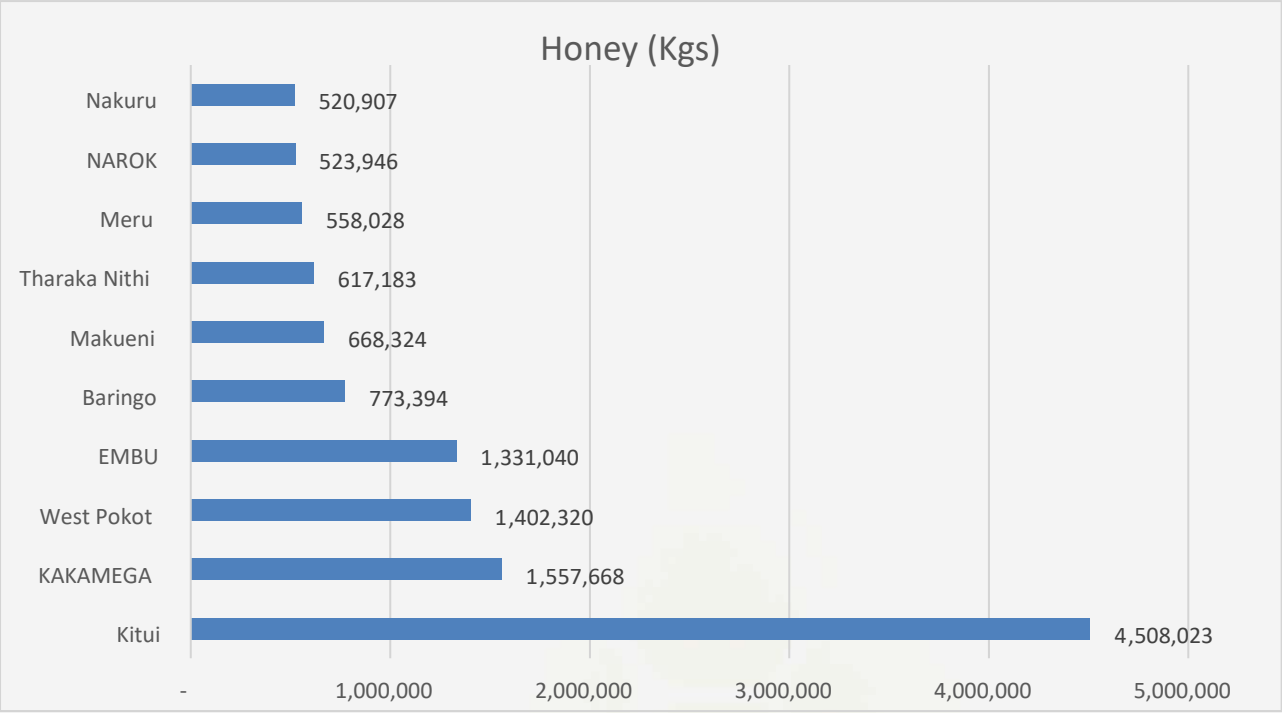


Figure 1: Leading producers of natural honey worldwide (FAO, 2021)

Figure 2: Top 10 honey producing counties in Kenya (Source: DLP 2021)



2. Africa accounts for 9% of the global honey production. Ethiopia is the leading honey producer in Africa, accounting for 54,000 MT. Other major producers include Tanzania at 30,000 MT and Kenya at 25,573 MT (FAO, 2021).

3. Honey demand in Kenya is much higher than the supply, making the Country a net importer. According to FAO (2019), the national consumption, estimated at 47,500 MT, was far above the national production of 25,573 MT. An equivalent of 2% (511MT) of the total national production is exported, creating an annual supply deficit of about 22,500 MT. The per capita consumption of honey in Kenya stands at 1.1 kg against the World Health Organization (WHO) recommendation of 3.7 - 4.4 kg. Honey demand in the Country depends on notable drivers, including population, economic growth, urbanisation, and the desire for healthier diets. This demand is set to rise in the future, creating a future market for improved production.

4. The Agriculture sector contributed about 22.4% of the overall GDP in 2021, representing KES 527 billion. Livestock contribution to Kenya's GDP stands between 12%, representing 40% of agricultural GDP. In Kenya, the apiculture industry is domiciled in the State Department for Livestock. The Apiculture industry contributes to the sector 2.3% of the Agricultural GDP.

5. The Kenyan bee industry value chain is a significant income earner; it generated approximately KES 15.2 billion (DLP, 2023) from honey and beeswax alone. The industry is beneficial in employment creation, offering opportunities for thousands beekeeping households, artisans, traders, apitherapy practitioners, and other value chain actors. Although the Country has the potential to produce honey in all the agro-ecological zones, most of the honey is produced in arid and semi-arid areas.
   Bees contribute significantly to food production and food security as pollinators. They contribute to the growth of various food crops and have a significant impact on the ecosystem.
   Despite the crucial role bees play in maintaining food security, their populations are under threat from various factors such as habitat loss and pesticide use. These threats can lead to a decline in pollinator populations, which in turn can negatively impact crop yields and food security.
   Such declines in bee populations put the Kenyan and global food supply at risk since approximately 35% of all crops are pollinated by bees. Given the interdependence of ecosystems, a decline in the crops pollinated by bees would disrupt the food chain and affect other food sources.

Makueni County has significant potential for honey production, with about 6,750 farmers engaged in beekeeping. The county has 61,059 hives, producing an estimated 668,324 kg of honey annually, which is only 37% of the potential 1,812,450 kg (Apiculture National Value Chain Development Strategy, 2024). This production earns farmers around Ksh 569,855,000 from honey and beeswax. Honey flow is linked to the region's bimodal rainfall patterns, with four of the six sub-counties having high honey production potential, though all sub-counties contribute to honey production. Rainfall distribution plays a crucial role in determining honey output.

1.1 Honey production and hive population trends

6. Honey productivity in the Country has remained low due to several factors. According to the Makueni County Statistical abstract (2023), productivity per hive per year between 2018 and 2021 averaged
   10 kgs against a potential of 25 kgs for an assumed 60% occupation rate. This is far below the production potential for most hives, including the traditional log hives.

Table 1:Honey Productivity Trends for Makueni from 20148to 2022 (CSA 2023 Makueni).

YEAR	TOTAL HIVE POPULATION	PRODUCTION IN KG	PRODUCTIVITY PER HIVE/PER YEAR
2018	56985	625363	10.97
2019	72429	630572	8.70
2020	57886	694634	12.00
2021	55677	668324	12.00
2022	61059	601492	9.85

7. The greatest potential for beekeeping in the County is in the lowlands of KIbwezi West,Kibwezi East and Makueni sub county due the warm climatic conditions and natural bee forage based on the Directorate of Livestock Production statistics for 2023.

8. This is aggregate productivity data based on total production, the number of hives, and estimated hive occupancy, and it is not disaggregated based on hive type. An economic unit apiary comprises 25 traditional hives, or 20 Langstroth hives, with an occupation rate of 60% through a lifespan of about 15 and 10 years, respectively.
   Makueni county honey production based on 61059 (2023 DLP Makueni) beehives with traditonal log hives Kenya top bar hive is 4.37%,Log hive is 69.06% Langstroth 26.57% according to the county Statistical Abstract 2023. A trend has developed in the last decade, showing steady growth in the population of improved hives and a decline in traditional hive numbers, indicating the gradual adoption of improved hive technologies.

Table 2.Beehives by type by Sub County Makueni County(DLP-Makueni 2023)

Number

Sub County	Type/Year	2018	2019	2020	2021	2022*
Mbooni	Kenya Top Bar Hive	420	409	394	427	406
	Log hives	1,600	16,539	6,016	5,833	5,950
	Lang Stroth	3,800	3,908	1,812	3,789	4,547
Kilome	Kenya Top Bar Hive	105	100	120	104	99
	Log hives	3,950	4,001	1,760	1,737	1,772
	Lang Stroth	915	946	557	772	926
Kaiti	Kenya Top Bar Hive	115	119	100	124	118
	Log hives	4,700	4,783	3,062	2,809	2,865
	Lang Stroth	1,090	1,130	823	922	1,106
Makueni	Kenya Top Bar Hive	60	57	213	159	151
	Log hives	2,450	2,334	11,502	10,002	10,202
	Lang Stroth	535	551	2,301	448	538
Kibwezi West	Kenya Top Bar Hive	800	700	748	805	765
	Log hives	28,500	28,782	8,965	11,952	12,191
	Lang Stroth	6,500	6,698	3,004	5,465	6,558
Kibwezi East	Kenya Top Bar Hive	90	86	1,705	1,189	1,130
	Log hives	1,200	1,125	12,758	9,009	9,189
	Lang Stroth	155	161	2,046	131	2,546
County Totals	**Keny-a Top Bar Hive**	**1,590**	**1,471**	**3,280**	**2,808**	**2,669**
	Log hives	**42,400**	**57,564**	**44,063**	**41,342**	**42,169**
	Lang Stroth	**12,995**	**13,394**	**10,543**	**11,527**	**16,221**

CHAPTER 2

2.0. VALUE CHAIN ANALYSIS

9. The apiculture value chain in Makueni has had low production. This low production is attributed to several factors that include inadequate knowledge and skills on honey production, limited access to modern bee-keeping equipment, inadequate credit facilities, and a decline in bee population.. The value chain has both formal and informal actors. The formal actors include honey producers, aggregation and collection centers, transporters, processors, distributors, and retailers. Majority of the actors serve multiple roles in the value chain. Informal actors are roadside traders who market honey directly to consumers.

10. A comprehensive value chain analysis was undertaken by the County Government in collaboration with key stakeholders on the honey value chain to identify gaps and opportunities for interventions. These findings were subjected to a prioritization process, resulting in the identification of key investment or intervention areas along the value chain. The primary objective is to enhance the competitiveness of the entire value chain. A value chain map was developed to provide a visual narrative, delineating the functions, actors involved in these functions, enablers, regulators and the interactions along the value chain. The participants in the bee value chain comprise a diverse array of stakeholders hailing from both the public and private sectors, each contributing to the value chain.

11. The apiculture value chain links the actors and activities involved in delivering honey and other bee products to the final consumer. Figure 3, below, presents the different actors along the apiculture value chain including input supply, production, aggregation, transport, processing, retail, and consumption.

Appiculture Value Chain Map

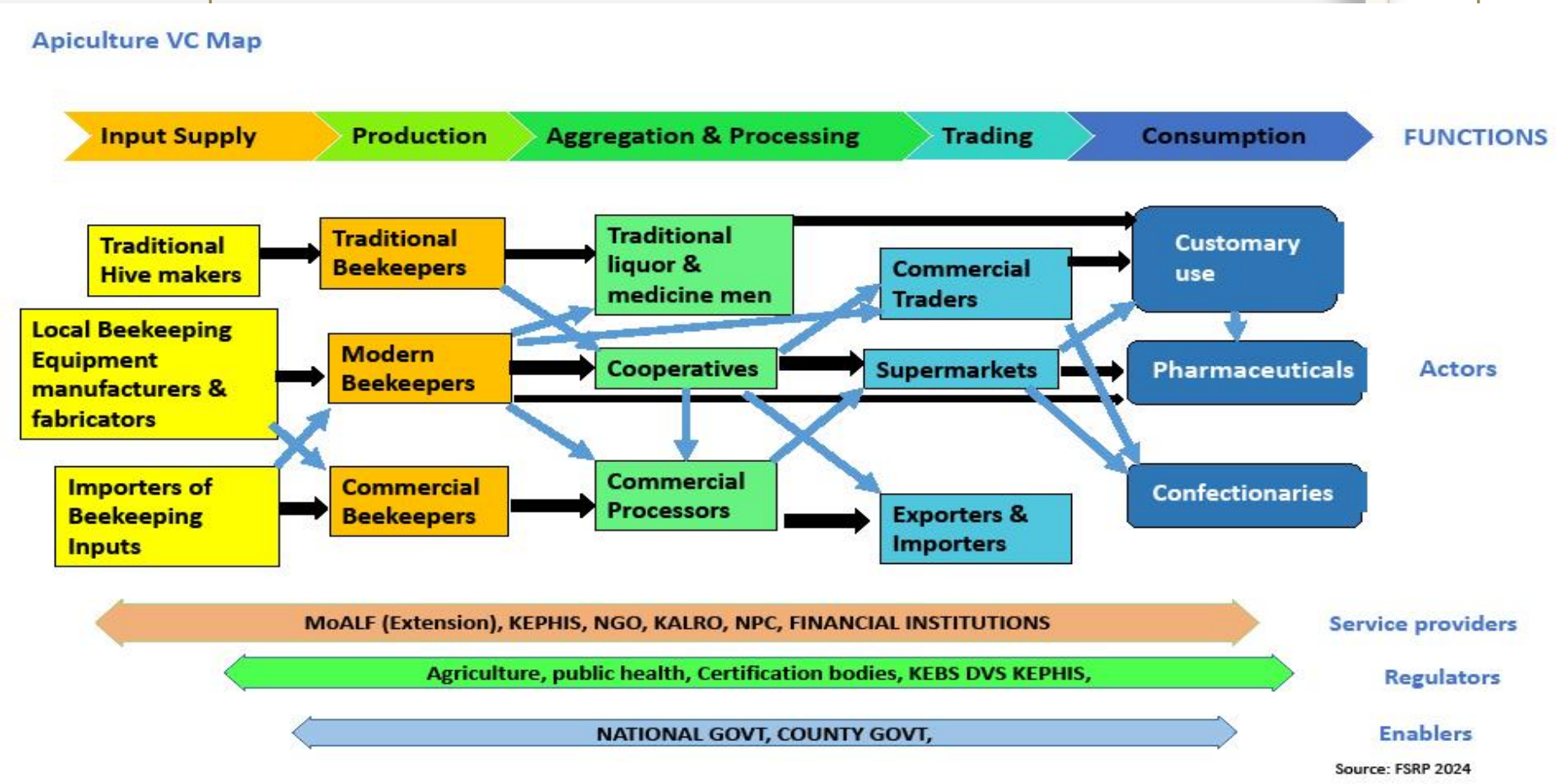


Figure 3: **Honey value chain map. Source: FSRP 2024.**

2.1 VALUE CHAIN ACTORS

12. An apiculture value chain analysis was undertaken with stakeholders who identified gaps and opportunities along the value chain. The gaps and opportunities were prioritized, and investment areas along the value chain were identified to make the value chain more competitive, increase market participation and commercialization. The value chain actors are categorized into; Input suppliers, producers (beekeepers), processors/ aggregators, traders and consumers.

i. Input suppliers

13. Input suppliers play a crucial role in supporting the value chain by providing essential tools, equipment, and materials for beekeeping activities. This segment encompasses various actors, each contributing to the supply chain. Their contributions impact the efficiency, productivity, and sustainability of beekeeping enterprises. Key input suppliers include:

a. Traditional hive makers

- Traditional hive makers are skilled artisans who craft hives using local materials and traditional techniques.
- They contribute to the supply of beehives, including traditional designs such as log hives or skeps.
- These artisans often possess indigenous knowledge, passed down through generations, on hive construction and beekeeping practices.

b. Local beekeeping equipment manufacturers and fabricators

- Local manufacturers and fabricators specialize in producing modern beekeeping equipment and tools.
- They provide essential items such as Langstroth hives, top bar hives, bee suits, smokers, bee brushes and hive tools.
- They make the equipment locally, hence ensuring its availability and access to beekeepers.

c. Importers of beekeeping inputs

- Importers source and bring in specialized beekeeping inputs that may not be locally produced.
- They facilitate access to a broader range of equipment, technologies, and beekeeping innovations from international markets offering choices to the beekeeper.

- They contribute to the diversification and modernization of beekeeping practices through the introduction of new technologies.

ii. Producers/Beekeepers

14. Beekeepers are central to the apiculture value chain through the management and farming of bee colonies for honey production. This segment is diverse because it encompasses various types of beekeepers. Their role significantly influences the quality and quantity of honey produced within the value chain. Beekeepers can be categorised into:

a. Traditional beekeepers

- Traditional beekeepers follow age-old production practices, often relying on indigenous knowledge and cultural traditions.
- They may use traditional hive designs such as log hives and employ methods passed down through generations.
- Traditional beekeepers often have a strong connection to local ecosystems and may focus on low-investment beekeeping practices devoid of commercial orientation.

b. Modern beekeepers

- Modern beekeepers adopt contemporary beekeeping practices, utilizing standardized hive designs like Langstroth hives.
- They incorporate scientific knowledge, improved hive management techniques, and use tools such as bee suits, smokers, and hive tools.
- The aim of modern beekeepers is increased efficiency, honey yield, and adherence to quality standards.

c. Commercial beekeepers

- There are few commercial beekeepers in the County, and they operate on a larger scale, treating beekeeping as a business such as the Native beecare,Beelove Apiaries, and Nyuki Hubs Limited among others.
- They often manage multiple apiaries and employ professional colony management practices.
- They have the requisite knowledge and skills in modern beekeeping.
- Commercial beekeepers focus on maximizing honey production, participating in formal markets, and achieving financial sustainability.

iii. Processors and Aggregators

15. Processors and aggregators process and transform the raw honey into finished marketable products. Their activities contribute to the value addition of honey and related products, enhancing incomes and market access for beekeepers. This segment encompasses various actors with distinct characteristics:

d. Traditional liquor and medicine men

- Herbalists often make many of their liquid medicines using honey.

Honey is also used to brew traditional beers, often used in cultural practices such as

- dowry and settlement of disputes, among other cultural practices.

e. Cooperatives

- Cooperatives bring together beekeepers and honey processors, fostering collaboration, aggregation and collective marketing efforts.

- Importers play a role in sourcing honey products from different regions to meet local market demands.
- These actors ensure the cross-border flow of honey, enabling trade at a broader scale.

16. Other traders include open-air markets, roadside kiosks, hotels, hawkers, retail shops.
    - Through cooperatives, beekeepers can access shared processing facilities, pool resources, and collectively market their products.
    - Cooperatives contribute to the empowerment of beekeepers by enhancing their bargaining power and market access.

f. Commercial processors

- Commercial processors operate on a larger scale, aggregating and processing honey for broader market distribution such as the Nyuki Hub Ltd,Native Beecare,Beelove Apiaries,Jobete supplies Ltd,and Kibwezi Women Honey Refinery
- They adhere to quality standards and often invest in modern processing technologies to ensure consistency and hygiene.
- Commercial processors play a significant role in meeting the demands of formal
  markets and export opportunities.

iv. Traders

17. Traders facilitate the movement of honey and bee-related products from producers to consumers. They act as intermediaries, connecting different segments and ensuring a steady flow of products to diverse markets. Their involvement contributes to market expansion, creating opportunities for beekeepers and processors to reach a broader consumer base. This category includes various types of traders with distinct roles:

g. Commercial traders

- Commercial traders operate varying honey volumes depending on their abilities mainly driven by finances. They buy honey from beekeepers or

processors for resale to consumers. On some occasions, they aggregate the honey and serve as both wholesalers or retailers, or both.

- They often play a critical role in linking producers with diverse markets, contributing to the overall market reach of apiculture products.

h. Supermarkets

- Supermarkets are key players in the retail sector, providing a platform for the sale of honey to end consumers.
- They contribute to the visibility and accessibility of honey products, often requiring standardized packaging and adherence to quality standards.

i. Exporters and importers

- Exporters focus on facilitating the shipment of honey products to Local and international markets, contributing to the global reach of the apiculture value chain such as the The Hive Group.

v. Consumers

18. Consumers play a crucial role in the apiculture value chain, directly influencing the market demand for bee products. Their preferences and purchasing behavior impact the success of beekeeping enterprises. They range from individual households with diverse consumption patterns to those with specific cultural, confect or pharmaceutical preferences, contributing significantly to the demand dynamics within the apiculture value chain. The demand for hive products is high relative to supply. The County Per capita consumption is 1.1 kgs, against a recommendation by WHO of 3.7 kgs to 4.4 kgs. The diverse roles of consumers in the apiculture value chain include:

j. Individual households

- Households are significant consumers of bee products due to their diverse uses and nutritional benefits.
- Honey is a versatile and widely consumed bee product in households worldwide. It serves as a natural sweetener for various culinary purposes, including sweetening beverages, baking, cooking, and as a spread on bread and toast.
- They contribute to the demand for honey, beeswax, propolis, and other bee products for personal consumption and various household uses.
- Preferences for natural and organic products drive the market, influencing the types
and quality of bee products demanded.

k. Customary uses - Individual dowry

- In Makueni bee products have traditional and customary uses, such as being included in dowry offerings.
- Honey, often considered a symbol of sweetness and purity, may be presented as a cultural tradition during marriage ceremonies.
- This cultural significance influences the consumption patterns and value attributed to bee products.

l. Pharmaceutical practitioners

- Honey is a component of many commercially manufactured pharmaceutical products, such as cough syrups.
- Bee products, particularly propolis and royal jelly, are valued for their potential health benefits and therapeutic properties.
- Pharmaceutical practitioners utilize these bee-derived substances in the formulation of health and wellness products.

m. Cosmetic industry

- Cosmetic industries are significant consumers of bee products. Bee products have beneficial properties and versatility in skincare and beauty products. Bee product Honey is valued in cosmetics due to its moisturizing effects on the skin thus, it is incorporated in soaps, creams, shampoos and conditioners.
- Bee-derived ingredients align with consumer preferences for natural, eco-friendly, and sustainable beauty products. Cosmetic companies often emphasize the purity and authenticity of bee products in their marketing to appeal to health-conscious and environmentally aware consumers.
- Responsible cosmetic companies prioritize ethical sourcing practices, ensuring that bee products are obtained sustainably and without harming bee populations or their habitats. They may partner with reputable beekeepers or organizations committed to bee conservation and welfare.

n. Confectionery industry

- Confectioneries include bakeries, candy manufacturers, and dessert shops where bee products are particularly used.
- Honey, as a natural sweetener, is used in cakes, cookies, pastries and candies to provide sweetness while adding unique flavours and textures to confections.
- Confectionery manufacturers may create speciality products featuring bee products like royal jelly, bee pollen, or propolis.
- Many confectionery companies may engage in sustainability and social responsibility by sourcing honey and other bee products from local beekeepers or supporting bee conservation efforts.

2.2 ECONOMIC ANALYSIS

2.2.1. Cost-benefit analysis of honey value chain

19. The current national average number of hives per household is 5.75 (KPHC, 2019). This includes both traditional and modern hives. The cost benefit analysis shows that keeping this number of hives is unprofitable. To start commercialising the enterprise, it is recommended to install at least 12 improved hives.

Current situation on the honey situation

Table 3: Cost-benefit analysis of the current situation in honey production

PRODUCTION UNDER CURRENT SITUATION (TRADITIONAL)	
Yield (kg) per traditional hive	20
Average no. of hives per household	5.75
Honey price per kg (KES)	350
Gross income @60% occupation rate (KES)	24,150
Variable costs	
Labour	3,000
Greases	1,200

PRODUCTION UNDER CURRENT SITUATION (TRADITIONAL)	
Equipment hire	3,000
Transport to a collection Centre	1,000
Total variable cost (KES)	8,200
Net Income (KES)	15,950

NOTES:

- The households have an average of 5.75 hives, which is 60% of occupation rates.
- Producers have inadequate knowledge and skills.
- Production is mostly at the cultural and subsistence level
- The harvesting cycle is two seasons per year

Commercialization of honey production

Table 4: Cost-benefit analysis for commercialisation of honey production

PRODUCTION COMMERCIALISATION	
Yield (Kg) per improved (modern) hive	40
Average no. of hives per household	12
Honey price per Kg (KES)	400
Gross income @80% occupation rate (KES)	153,600
Variable costs	
Labour	12,000
Greases	6,000
Equipment hire	6,000
Transport to a collection centre	3,000
Total variable cost (KES)	27,000
Net Income (KES)	126,600

NOTES:

- The household will be regarded as commercial when they reach 12 modern hives at 80% occupation. This assures the producer of an average daily income of KES 340.00.
- Labour estimates are at KES 3000 per year. Labour will be employed only when needed.
- Must have good knowledge and skills to manage the hives effectively.
- The harvesting cycle is two seasons per year, while modern hives can be harvested twice per season when good management practices and good weather conditions have been considered.
- Good environmental conservation is to be considered to ensure a continuous flow of bee forage. The bee forage can be supplemented with agricultural crops that produce flowers.

2.2.2. Stakeholders Value Share

Value share distribution among actors under current production.

20. Under current national production system, the producer is receiving the highest share despite the low skills and inefficiency in production.

Table 5: Value share distribution among the honey chain actors under the current situation

Chain actor	Variable costs	Revenue (Selling price in KES)	Gross income	Gross margin	Added value	Value share
	A	B	C=B-A	(C/B) x 100	Revenue– previous actor's revenue	Added value / Retail price X 100
Farmer	172	350	184	53	350	43.75
Processor	346	650	304	47	300	37.50
Trader/Retailer	651	800	149	19	150	18.75

2.2.3. Value share distribution among actors under commercialization.

21. Under commercialization, the producer will add value to the production system, therefore increasing the value share in trade.

Table 6: Value share distribution among the honey chain actors under commercialization.

Chain actor	Variable costs	Revenue (Selling price in KES)	Gross income	Gross margin	Added value	Value share
	A	B	C=B-A	(C/B) x 100	Revenue – previous actor's revenue	Added value / Retail price X 100
Farmer	166	400	234	58.5	400	50
Processor	346	650	304	47	250	31.25
Trader/Retailer	651	800	149	19	150	18.75

22. Value share is a percentage of an actor's added value of the overall retail price or consumer price. The size of the value share reflects the amount of effort, cost and risk that an actor has put in the value chain.

23. The current production practice, as depicted in Table 5, indicates that the Farmer, Processor and Trader/Retailer have value shares of 44%, 38%, and 19% respectively, with corresponding gross margins of 53%, 47% and 19%. Table 6, which depicts the performance of the same actors under the commercialization option, indicates that Farmer, Processor and Trader/Retailer have value shares of 50%, 31% and 19% respectively. A comparison between the current production system and the commercialization option indicates that the farmer has higher value share of 50% compared to the current value share of 44%. The gross margins for the farmer are equally

higher under the commercialization option, at 59%, compared to gross margins under the current practice, at 53%.

24. The above analysis indicates that smallholder farmers in Apiculture can improve their incomes if supported to transition from current practice to commercialization through interventions to increase efficiency (reducing costs) and to increase effectiveness (increasing value).

CHAPTER 3

3.0. VALUE CHAIN CONSTRAINTS

25. Apiculture in the County is faced with various constraints and challenges, which have hindered its development and, therefore, contributed to low productivity and profitability across the value chain. The following are some of the constraints.

3.1 INPUT SUPPLY

a. High costs of modern beekeeping equipment.

26. Subsistence beekeeping relies on traditional equipment, which are sourced locally. Commercial beekeeping requires modern, efficient equipment and technology, which is expensive to most small-scale beekeepers.

b. Limited access by farmers to quality bee equipment.

27. There are very few businesses dealing with quality beeping equipment in the County. These are found mainly in major towns, especially in Wote, Kathonzweni, Makindu and Kibwezi. Grassroots beekeepers from rural parts of the County, therefore, find it difficult to access this equipment.

c. The proliferation of poor quality equipment.

28. Recent growth trends in the bee industry and limited access to standard equipment and information have led to the mushrooming of quacks and unscrupulous traders. This has led to the proliferation of substandard equipment, dissemination of inaccurate technical information, and wrong advice to aspiring beekeepers, leading to significant losses and disillusionment.

d. Inadequate skills among artisans to fabricate standard bee equipment

29. Manufacturers of standard bee equipment and accessories should adhere to strict material quality standards and measurements. This requires specialized training to build the skills. Mainstream artisans like local carpenters, tailors and metal fabricators find it difficult to replicate bee equipment. This is because of their limited understanding of the concept behind precise measurements and strict material quality requirements, e.g., the bee space in hive manufacture.

3.2 PRODUCTION

a. Low production and productivity

Honey production in Makueni county is 668.324 MT and **32.968** MT of beeswax against a potential of 1812.450 MT of honey that accounts for 37% of the honey production potential. This low production can be attributed to inadequate knowledge and skills from the bee value chain actors, limited access to modern beekeeping equipment, inadequate credit facilities, and a declining bee forage base. The long history of inadequate training on beekeeping from institutions of higher learning has produced extension personnel with the limited technical capacity to offer effective extension services to beekeepers.

b. Low hive occupation rates

30. Over the last few decades, an apparent reduction in feral bee colony populations has been observed. This manifests mainly in the consistent reduction in hive occupation rates. Beekeeping in Makueni predominantly depends on natural hive occupation by feral bee colonies from the wild. Natural hive occupation occurs when migrating swarms of bees move into hives in an established apiary. Low occupancy rates has been in the county ,leading to extended durations of installed hive idle capacity and shortened hive lifespan.

c. Declining bee population

31. Increasing intensification in crop and livestock production results in the use of agrochemicals, which have high toxicity (pesticide poisoning) to honey bees. These agrochemicals, when used indiscriminately, can result in the massive death of honeybees. This contributes to the declining bee populations, which, in turn, contributes to the low production and quality of bee products.

d. Inadequate knowledge and skills

32. There is generally a low level of knowledge and skills on modern beekeeping among bee industry value chain actors in the County. This, in part, may be attributed to the limited number of institutions and individuals with qualifications to provide sound technical capacity building to the sector players. There is a lack of training curriculum on beekeeping in most institutions offering training to extension service providers and community level apiculture service providers. Extension personnel in the counties lack the necessary knowledge and skills required to commercialise the sub-sector.

e. Declining bee forage resource base

33. Deforestation and natural ecosystem degradation threaten bee resources due to the resultant destruction of their habitat. It also erodes the floral resource base on which

bees depend for survival. Over the years, the County has witnessed natural ecosystem degradation at a massive scale, with major drivers being agricultural and human settlement expansion, droughts, and ineffective rangeland management

f. Low level of adoption of TIMPs in the value chain

g. Inadequate capacity to exploit the diverse bee product and services range

35. A hive has the potential to produce six primary products namely, Honey, Bees wax, Pollen, Royal Jelly, Propolis, and Bee Venom. These products have the potential to fetch the producer high income when exploited. In addition, the value addition of honey, bees wax, propolis, and other products has the potential to create hundreds of secondary products, which are in high demand in the County's market.

36. Some countries keep bees for pollination services, while honey comes as a secondary product. This ensures that the farm yields high quality products to meet food security needs and incomes for producers. The development of these value-addition initiatives creates opportunities for small and medium enterprises, which would create employment and income for communities.

However, the opportunity of using bees for pollination services is not exploited.

3.3 PROCESSING

a. Inadequate capacity in value addition

37. In Makueni, the beekeeper utilises honey in its raw and semi processed form, mostly for subsistence purposes and cottage industries. Besides honey, the beekeeper is unable to utilise the other five products from the hive (bees wax, pollen, propolis, royal jelly, and bee venom) for their benefit despite the huge demand for these products in the market. Inadequate knowledge on value addition by the farmer and the extension personnel has not helped to empower the producer to tap the benefits from value addition.

b. Inadequate quality control systems

38. Makueni County does not have laboratories that offer quality assurance services to beekeepers. As a result, the County rely on organoleptic tests that are not able to detect industrial adulteration and pesticide residues

Increased incidences of honey adulteration

39. Suspected high incidences of honey adulteration, as a constrain in the market, has made consumers shy away from buying local honey, and hence denying the beekeepers a source of revenue. The value chain actors lack knowledge of the harm adulteration poses to the industry in the long term.

3.4 MARKETING

Inadequate honey supply

40. Makueni County has a significant amount of honey in the market supplied from other counties. Mobilisation of producers to increase production and form viable cooperatives has often been a challenge due to inadequate capacity to run them. Producers have often been the subject of middlemen who exploit them because they lack a formal arrangement to market their honey.

c. Lack of residue monitoring plan

41. The County lacks a residue monitoring plan for honey. The accredited laboratories in the Country include the Kenya Bureau of standards, the Director of Veterinary Services, and the Kenya Plant Health Inspectorate laboratories.

d. Disorganized markets

42. Most beekeepers are not organized into viable marketing organizations, and therefore, they have been left at the mercy of exploitative middlemen. There are only one beekeeping cooperative in the county and a few aggregation centres. However, the ability of the cooperative to effectively bargain for the fair market price of the produce has been constrained by low capacity in leadership, poor book-keeping, and poor linkages to the market. Most farmers, therefore, sell their bee products at farm gates to individuals and middlemen at low prices.

Strategic Design Principles

43. Strategic design principles involve a holistic approach and are essential for creating a robust and sustainable beekeeping value chain. Implementing these strategic design principles will contribute to the sustainable development of the beekeeping value chain, fostering economic growth and environmental conservation. The following are the key strategic design principles:

o. Private sector engagement

44. The involvement of private sector players, e.g., commercial beekeepers, processors and traders, will ensure the adoption of a market-driven approach that will contribute to alignment with the market demands that will enhance competitiveness.

45. Public-Private Partnerships will foster collaborations, contracts and engagements between the public and private sectors to leverage resources, knowledge, and networks for sustainable beekeeping initiatives. This will help in building and maintaining relationships and partnerships among individuals, organizations and communities to achieve common goals and maximize impact. The establishment and support of the County multi-stakeholder platforms will enhance the accountability of interventions and enhance information sharing.

b. Food security and safety

46. The strategy is geared towards establishing adherence to quality standards for honey and other bee products to ensure food safety. This will also ensure compliance with national and international regulations to enhance compliance and consumer trust.

47. A traceability system will be promoted and implemented across the value chain to enable the tracking of honey from the hive to the consumer. This will ensure transparency and accountability in the production processes.

48. In addition, honey production and pollination services will be promoted to mainstream food security into the project. This will ensure improved yields and crop quality, even as we improve honey production from the hives.

c. Environmental sustainability

49. The strategy will integrate biodiversity conservation into beekeeping operations. Promoting the planting of bee-friendly flora and creating awareness of the safe use of pesticides on agricultural crops to protect pollinators and ecosystem health will be encouraged.

50. This will involve development and adoption of climate-smart beekeeping practices that considers the impact of climate change. The strategy will be implemented for sustainable resource use and resilience in the face of changing environmental conditions.

d. Social inclusion

51. This will consider promotion of gender-inclusive practices in beekeeping, ensuring equal participation and benefits for men,women,youths and PWDs. Training and capacity-building programmes will be promoted to empower women and youth in the value chain. This will foster community engagement and participation in decision-making processes.

52. Initiatives will be developed to enhance social cohesion, inclusivity, and the well-being of beekeeping communities.

e. Documentation and dissemination.

53. The strategy targets a systematic recording, organizing, and sharing of knowledge, information, and best practices to enhance transparency, learning, and impact. It will promote the development and maintenance of databases and repositories to store and organize information for easy accessibility and retrievability. This also envisages the production of periodic reports, case studies and research findings to document progress, outcomes, and lessons learned. Organize and participate in events (field days, open days, exhibitions, and exchange visits, among others) that facilitate the exchange of knowledge, experiences, and best practice.

MAKUENI APICULTURE VALUE CHAIN DEVELOPMENT STRATEGY

CHAPTER 5

5.0. INVESTMENT AREAS

54. The apiculture value chain development strategy will focus on four broad investment areas to address the gaps identified during the value chain analysis: (i) Increase production and productivity of the hive, (ii) Strengthen the capacity of institutions, (iii) Increase access to structured markets, and (iv) Promote hive products-based cottage industries. The following are the strategic objectives based on the above broad investment areas.

i. To increase the annual honey production by 15% 2028.
ii. To build the capacity of the bee value chain players.
iii. To facilitate market access.
iv. To support the establishment of hive products-based cottage industries.

5.1 Strategic objectives and activities

5.1.1. Objective 1: To increase the annual honey production by 15%.

55. **Activity 1: Build the technical capacity of extension staff, community level service providers, artisans and beekeepers.** The provision of relevant and suitable training is important for the development of a productive apiculture value chain. Using existing training modules or customised ones, the strategy will facilitate apiculture technical trainings for extension personnel, community level service providers and agri-preneurs. The Community Level Service Providers will offer technical apiculture services at a fees. The training will impart technical capacity and boost the confidence of extension personnel to offer technical support to producers.

56. The strategy will facilitate the training of artisans including carpenters, tailors, and tinsmiths. The trained carpenters will be able to build standard beehives and bee brushes. The trained tailors will acquire skills to manufacture standard high-quality bee suits.

57. The strategy will facilitate beekeepers in modern beekeeping. The new skills will help beekeepers manage their colonies better, attain higher productivity and diversify into other hive products like bee venom, royal jelly, propolis, and bee pollen. The farmers will also be able to keep better records and aspire for more advanced production technologies.

58. **Activity 2: Promote use of improved hives and hive accessories.**

    The strategy will promote accessibility and availability of standard beekeeping equipment and accessories to organised groups and clusters in the apiculture value chain.

59. **Activity 3: Support research on high occupation on hives, new technologies, innovation and management practices.** The strategy envisages working with KALRO, ICIPE, National Beekeeping Institute, and other research institutions and universities to establish factors affecting hive occupation in modern hives. This will address the widespread complaints by beekeepers from different ecological zones in Makueni on hive occupation. New technologies, innovations and management practices will also be considered.

60. **Activity 4: Support bee forage development and management**. Sustainable beekeeping and honey production must factor in the development and conservation of forests and innovative tree establishment approaches. The strategy will support the establishment of tree nurseries for api-forestry (bees forage for nectar and pollen from trees) and support community sensitization. Sustained planting of bee plants will, over time, strengthen the floral resource base and lead to better productivity.

Activity 5: Promote beekeeping in conservancies and public forests. Under Kenyan law, in the Acts of parliament establishing the Kenya Forestry Services (KFS) and the Kenya Wildlife Services (KWS),Kenya Water Towers Agency (KWTA) provisions exist that allow for community participation in conservation activities. Beekeeping is a sustainable non-extractive approach to the utilization of forests, and conservancies would benefit from the floral resources endowment of public forests and conservancies.Forests in Makueni include;Makongo,Makuli,Nthangu,Kenze,Mutula,Kilala,Kibwezi,Mbooni,Kilungu and Kwa Kathoka.

However, a structured approach is required, and beekeeping communities need to develop an understanding and possibly sign memoranda of understanding to access the forests and conservancies. The strategy will promote access to gazetted government forests and conservancies by beekeeping communities and private commercial farmers.Nthangu community forest associations have user groups with various activities allowed and one of the

user groups is beekeeping.The strategy will support establishment of apiaries along the buffer zones to minimize human wildlife conflict. This is along Tsavo West border and Chulu Hills.

61. **Activity 6: Supply and site hives on 30 acres of orchards and fruit trees for pollination.** The strategy will seek to promote the exploitation of bees for commercial pollination services to increase yields and quality of farm produce. Pollination services will also open up other income streams for the beekeepers. It is expected that this will eventually be upscaled and lead to the conservation of bees for biodiversity.The areas around Ukia,Kalamba,Matiliku,Mbui Nzau,Kilala and Kathonzweni (other places can be considered).

5.1.2. Objective 2: To build the capacity of the bee value chain players (To improve bee product quality assurance)

Activity 1: Establish Mobile Complete Testing Kits at County headquarters and at the cooperative level

62. This will be implemented through the following sub-activities:

i. County Headquarters

63. The strategy will support the establishment of complete mobile test kits to correctly analyze adulteration, heavy metals, pesticides, and antibiotic residues as prescribed by international market standards.

ii. Cooperative level

64. The strategy will support the establishment of complete mobile test kits to correctly analyze adulteration, heavy metals, pesticides, and antibiotic residues as prescribed by international market standards.

iii. Procure Mobile Test Kit Consumables.

65. The Mobile Test Kits will require a continuous supply of consumables to ensure that services are uninterrupted.

66. **Activity 2: Conduct quarterly honey quality surveillance surveys.** Regular quality surveillance surveys will be conducted to collect data and samples for analysis at the County headquarters and cooperative level. Quality assurance starts at the farm level. Regular surveillance of the market and production will offer information that can contribute to the residual monitoring plan. The surveillance results will also help in making informed decisions on quality across the strategy areas and the County.

67. **Activity 3: Support data collection and sharing (documentation and dissemination).** The strategy will support the development and operationalization of a county apiculture management system that will coordinate county or grassroots data collection, analysis and sharing with all the stakeholders in the value chain to facilitate appropriate decision-making at all levels.

68. **Activity 4: Support the development and implementation of the residue monitoring plan for honey.** Kenya was delisted from the EU market in 2008. The Country is required to demonstrate that it has put a residue monitoring plan to enable her to be listed back to the European Union market. The County will support residue monitoring plans.

5.1.1. Objective 3: To facilitate market access

69. **Activity 1: Support the establishment of collection centres and aggregation hubs.** The strategy will support beekeepers in forming aggregation centres. These collection and aggregation hubs will help them to bulk their honey, process it, and add value to it and other hive products. It will also give them better market prices due to economies of scale.
70. **Activity 2: Support linkages and networks.** The strategy will promote linkages between producers/bee-keepers and honey off-takers. This will link producers/bee-keepers through the promotion of aggregation centres and the signing of MOUs between them
71. **Activity 3: Promote contract farming.** The strategy will promote contract farming between producers/bee-keepers with off-takers, especially aggregation centres (e.g., cooperatives) for honey and niche products. This will ensure farmers get higher prices for their products. Besides, the farmers could benefit from capacity building, provision of services (e.g., harvesting and processing) and provision of inputs.
72. **Activity 4: Promote value addition.** The strategy will promote the value addition of hive products. Value-added products fetch higher prices in the market, e.g., bees wax soap, candles, body cream, bee cerate, shampoos, propolis tincture, propolis suspension, propolis honey, etc. This will be through processing, packaging and labelling. Value addition will be done at the aggregation centres, which will eventually become centres of excellence in commerce and industry to promote value addition.
73. **Activity 5: Building management capacity of POs to operate as profitable business entities.** The strategy will promote the establishment and capacity building of Producer Organizations (POs). They will be trained in governance, organizational structure, and fundamental organizational skills to run the business smoothly and efficiently.
74. **Activity 6: Establishment and support of County stakeholders' platforms.** The strategy will promote the establishment of county stakeholder platforms to ensure information sharing. Data and information collected concerning the beekeeping sector can be analysed and shared through these platforms to help in prudent decision- making.
75. **Activity 7: Establish apiculture market information system.** The strategy will support the development of a IT-based data gathering and reporting system to facilitate informed decision- making both at the county level.
76. **Activity 8: Support training on sanitary and phytosanitary measures.** To achieve this, there will be intensive training on sanitary and phytosanitary compliance adhered to.

5.1.2. Objective 4: To support the establishment of hive products-based cottage industries.

1. **Activity 1: Support capacity building on hive product-based cosmetics.** The strategy will promote the production of cosmetic products from hive products, including soaps, creams, lotions, lip balms, lipsticks, shampoos and conditioners.

2. **Activity 2: Support capacity building on apitherapy.** The strategy will promote the production of apitherapy products. These are medicinal products for health and wellness derived mainly from propolis and Royal Jelly. Propolis is a natural antibiotic, fungal and antiviral hive product. It can be consumed raw or value-added into propolis tincture, propolis soap and propolis suspension (propolis in honey), among others.

MAKUENI APICULTURE VALUE CHAIN DEVELOPMENT STRATEGY

CHAPTER 6

6.0. STRATEGY AREAS AND BENEFICIARIES

3. All the 6 sub counties have potential of beekeeping activities. The sub counties are characterized by a wide diversity of bee forage suitable for beekeeping.
4. The County will develop a selection criterion for beneficiaries. Data and facts will guide the selection to ensure that selection is based on available socio-economic data and will include: (i) potential to develop and improve the production of honey and other bee products, (ii) potential to develop and improve access to markets, (iii) availability of farmers who can undertake commercial production, and (iv) socio-economic data and the population of apiculture farmers.

   The beekeepers will be targeted for sensitization to form new CIGs/FPOs and buy shares and savings at the ward based SACCOs.

1. Local artisans, beekeepers, youths, processors and technical personnel will benefit from capacity building to acquire appropriate knowledge and skills. This will boost production and productivity, increase compliance levels to bee equipment standards and boost the quality of apiculture technical service provision.

6.1 IMPLEMENTATION FRAMEWORK

NARRATIVE SUMMARY	BASELINE	TARGETS	MILESTONE 2023/24	2024/25	2025/26	2026/27	2027/28
OBJECTIVE 1: To increase the annual honey production by 15%							

Activity 1: Build technical capacity of extension staff, community level service providers, artisans, and beekeepers	0	9105	1821	1821	1821	1821	1821
Activity 2: Promote use of improved hives and hive accessories.	0	45000	30000	15000	0	0	0
Activity 3: Support research on poor occupation of hives and TIMPs.	0	2	0	1	1	0	0
Activity 4: Support bee forage development and management	0	50	20	10	20	0	0
Activity 5: Promote beekeeping in conservancies and public forests	0	2	1	1	0	0	0
Activity 6: Supply and site hives on 30 acres of orchards and fruit trees for pollination	0	1000	0	500	500	0	0

OBJECTIVE 2: To build the capacity of the bee value chain players (To improve bee product quality assurance).

Activity 1: Establish complete mobile testing kits at the county headquarters and cooperative level.

County level	0	1	0	1	0	0	0
Cooperative level	0	1	0	1	0	0	0
Procure mobile test kits at county headquarters and cooperative level	0	1	0	0	1	0	0

Activity 2: Conduct quarterly honey quality surveillance surveys

NARRATIVE SUMMARY	BASELINE	TARGETS	MILESTONE				
			2023/24	2024/25	2025/26	2026/27	2027/28
Conduct capacity-building conferences for FPO members on hive product quality assurance	0	5	1	1	1	1	1
Conduct quarterly honey quality surveys	0	4	1	1	1	1	0
Support establishment and operationalization of production and market data collection information system	0	2	1	0	0	0	1
Support the development and implementation of the residue monitoring plan for honey	0	4	1	1	1	1	0
Activity 3: Support data collection and sharing (documentation and dissemination)							
To establish and support county multi-stakeholder platforms	0	1	0	0	0	0	0
Support establishment and operationalisation of production and performance data collection information system	0	2	1	0	0	0	1

NARRATIVE SUMMARY	BASELINE	TARGETS	MILESTONE 2023/24	2024/25	2025/26	2026/27	2027/28
Activity 4: Support the development and implementation of the residue monitoring plan for honey	0	1	0	1	0	0	0
OBJECTIVE 3: To facilitate market access							
Activity 1: Support the establishment of collection centres and aggregation hubs	0	6	2	2	2	0	0
Activity 2: Support linkages and networks							
Facilitate the signing of MoUs between POs & honey off-takers	0	6	3	3	0	0	0
Activity 3: Promote contract farming							
Support contractual agreements between POs and off-takers	0	5	2	3	0	0	0
Activity 4: Support training on sanitary and phytosanitary measures.	0	5	2	2	1		
Activity 5: Promote value addition	0	40	10	10	10	10	0
Objective 4: To support the establishment of hive products-based cottage industries							
Activity 1: Support capacity building on hive product-based cosmetics and apitherapy	0	10	5	3	2	0	0

6.2 BUDGET

Strategic objective	Intervention	Amount (KES)
To increase the annual honey production by 15% by 2028	Build the capacities of extension staff, community level service providers, community trainers, artisans, and producers	50,000,000
	Procure and supply bee equipment and accessories	60,000,000
	Promote bee forage development and management	10,000,000
	Promote beekeeping in conservancies and public forests	2,000,000
To build the capacity of the bee value chain players.	Establish complete mobile testing kits, and procuring mobile test kits consumables	5,000,000
	Conduct quarterly honey quality surveillance surveys	6,000,000
	Support the development and implementation of the Residue monitoring plan for honey	2,500,000
	To enhance information sharing, lobbying, and advocacy through the establishment and support of county multi-stakeholder platforms.	4,000,000
To facilitate market access	Support the establishment of collection centres and aggregation hubs	22,832,200
	Support linkage to honey off-takers	4,050,000
	Promote contract farming	6,000,000
	Building management capacity of POs to operate as profitable business entities	15,000,000
To support the establishment of hive products-based cottage industries	Support capacity building on hive product-based cosmetics	9,450,000
	Support the POs with initial start-up	20,000,000
Support the Promotion of commercial pollination services	Capacity building on provision of commercial pollination services	9,000,000
		1,800,000
To support research on causes of low hive occupancy in the Country	Strengthen research on TIMPS of bee value chain and bee forage	20,000,000
TOTAL AMOUNT		**238,632,200,000**

Annex 1: Apiculture value chain actors, enablers and regulators

VC (Nodes/ Segments)	Input Supply	Production	Processing	Commerce/ Trading	Consumption
Functions	Provide equipment, inputs, bee colonies, bee plants	Apiary and colony management, breeding & multiplication, harvesting	Quality control, Aggregation & value addition	Marketing.	Usage
Operators/ Actors	Bee equipment manufacturers. Bee equipment suppliers/ importers. Bee plant nursery operators. Bee health service providers.	Beekeepers. Apiary attendants. Bee breeders and colony multipliers.	Beekeeper/ cottage industry. Cooperatives. Private sector/ Processor.	Retailers Distributors Wholesalers	Households. Pharmaceuticals & cosmetics Institutions Entrepreneurs
Enablers/ Facilitators	National and County Government, Research & Training Institutions, Financial Institutions, and Development partners.	National and County Government, Research & Training Institutions, Financial Institutions, and Development partners.	National and County Government, Research & Training Institutions, Financial Institutions, and Development partners.	National and County Government, Research & Training Institutions, and Financial Institutions Development partners.	National and County Government, Research & Training Institutions, Development Partners, Media.
Regulators	National and County Government, KEBS, DVS, KEPHIS.	National and County Government, KEBS, DVS, KEPHIS.	National and County Government, KEBS, DVS, KEPHIS.	National and County Government, KEBS, DVS, KEPHIS.	Consumer Awareness Institutions.

Annex 2: List of potential Input manufacturers/suppliers, bee products / Processors, Off-takers, and Business accelerators in Kenya

	Name of Company/ Institution	Location	Contacts
1	National Beekeeping Institute (NBI),	Nairobi, Lenana	Ministry of Agriculture and Livestock Development, P. O. Box 34188, Nairobi Mobile: +254 20 271 8870 info@kilimo.go.ke beekeepinginstitution@kilimo.go.ke www.kilimo.go.ke
2	Apiculture Platform of Kenya (APK)	Nakuru, Kenya	Hill Plaza, 10th Floor, Rm 1003 P. O. Box 30416 – 00100, Nairobi info@apicultureplatformkenya.com www.apicultureplatformkenya.com
3	International Centre for Insect Physiology and Ecology (ICIPE)	Nairobi, Kasarani	P.O. Box 30772-00100 – Nairobi Telephone: (254) (0)20 8632000/1/2 E-mail: icipe@icipe.org
4	Native Beecare	Wote, Makueni	**0728534838**–
5	Beelove Apiaries	Makindu, Makueni	0729396897
6	African Beekeeping Resource Centre (ABRC)	Nakuru, Kenya	P. O. BOX 12173 - 20100, NAKURU Email: info@africanbeekeeping.org Website: www.africanbeekeeping.org
	Nyuki Hubs Ltd	Nairobi, Kenya	0724457470


	Name of Company/ Institution	Location	Contacts
7	The Hive Limited	Nairobi, Mombasa Road	P.O. Box 183 00200 Nairobi Kenya Mombasa Road -Nairobi Kenya Telephone Contacts +254 706 349 748 /+254 731 905 263 Email: info@thehive.co.ke Website: http://thehivegp.com
8	Bee Care Apiaries International	Magogoni Shopping centre along Thika – Garissa Road,	Mobile: +254 757 277 160/ +254 720 420 514/ +254 774 823 750 Email: info@beecareapiaries.com or beecareapiaries@gmail.com Website: www.beecareapiaries.com
9	Apiculture Venture Limited	Airport North Road, Next to Nairobi Coca Cola Bottlers	P. O. Box 78772 – 00500, Nairobi +254 722 582 033, +254 727 961 219
10	Emuki Bees Hub	Makindu, Makueni	0703685898
11	Jobete General Supplies	Kathonzweni, Makueni	0727789748
12	Yatta Beekeepers Limited	Juja Footbridge, off Thika Super highway	Mobile: +254 740 102 284
13	African Beekeepers Limited	Road A, Industrial Area	P.O. BOX 3752 – 0056, Nairobi
14	Bellafam Africa	Bee Centre, Along Thika – Kandara Road. Opp. Thika Greens, Phase 1, Thika.	+254 706 948 659
15	Agrisafe Kenya Limited	Nairobi, Kenya	P. O. Box 1191 – 00100, Nairobi
16	Norrapil Honey Enterprises Limited	Nanyuki, Kenya	P. O. Box 2022 – 10400, Nanyuki
17	Kamaki Farmers Cooperative Society	Ikutha – Mutomo, Kitui	P. O. Box 61 – 90207
18	Savannah Honey Africa	Utawala, Opposite St. Bhakita Health Centre	+254 724 052 975,

Annex 3: List of Strategy development experts

No.	Name	Institution
	PETER KINYENZE	DEPARTMENT OF AGRICULTURE, LIVESTOCK, FISHERIES AND COOPERATIVE DEVELOPMENT
	ERIC KAINDI	NAVCDP-POE, APICULTURE SPECIALIST
	JAMES KASOI	NAVCDP-POE, APICULTURE SPECIALIST
	ERASTUS KATIWA	DEPARTMENT OF AGRICULTURE, LIVESTOCK, FISHERIES AND COOPERATIVE DEVELOPMENT