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MINISTRY OF AGRICULTURE AND ANIMAL RESOURCES

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NATIONAL BEEKEEPING GUIDELINES

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GLOSSARY

Term	Relative meaning
Agro-forestry	Practice where agricultural crops and bees are raised together on one farm land
Apiary	Also known as a bee yard is a place where beehives are kept. It is a bee farm where several honey bee colonies are kept in bee hives.
Apiculture	The maintenance of honey bee colonies, commonly in hives, by humans to collect honey and beeswax, for the purpose of pollinating crops, or to produce bees for sale to other beekeepers.
Bee colony	This refers to a society of bees comprising of a queen, thousands of worker bees and hundreds of drones capable of reproducing themselves as a biological unit.
Beekeeping equipment	Refers to hives, hive tools, protective gear, smoker, honey and bees wax processing storage and grading facilities.
Beekeeper	A person who owns or controls bees or beehive or beekeeping equipment.
Bee products	Also known as hive products, include honey, beeswax, propolis, royal jelly, pollen, brood, live bees and pollination services
Bee reserve	Land area administered and managed for the purpose of sustainable development of bees and bee fodder resources
Beekeeping sector	Refers to the framework of all actors (individuals, institutions and governments) involved in apiculture
Colony	A herd of bees settled in a beehive. It comprises worker bees, drones, queen and brood.
Hive	Housing equipment with combs in which a beekeeper keeps bees and harvest honey and /or any other bee products. It may be a natural shelter where colonies settle such as trees, holes, ceilings. Such a place is termed as a "natural hive"
Modern hive	Referring to the langstroth and Kenya Top Bar Hive in contrast to the traditional log, grass and mud hives.
Swarm	A herd of bees looking for a hive or newly settled in a hive
Queen	Unique egg-laying bee in a colony which ensures the multiplication of bees in a hive

Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ARDI	Association Rwandaise de Développement Intégré
ASDS	Agriculture Sector Development Strategy
COMESA	Common Market for East, Central and South Africa
EDPRS	Economic Development Poverty Reduction Strategy
ETC	Et-cetra
GDP	Gross Domestic Product
GNP	Gross National Product
HIV	Human Immune Virus
IGA	Income Generating Activities
KG	Kilogram
KTBH	Kenya Top Bar Hive
MDG	Millennium Development Goals
MINAGRI	Ministry of Agriculture and Animal Resources
NGO	Non Governmental Organization
RAB	Rwanda Agriculture Board
RARDA	Rwanda Animal Resources Development Authority
RBS	Rwanda Bureau of Standards
RCA	Rwanda Co-operative Authority
RSSP	Rural Sector Support Program
SME	Small and Micro Enterprises
SNV	Netherlands Development Organization
VCA	Value Chain Analysis

Executive Summary:

Apiculture has been practiced across many generations in Rwanda and it plays a critical role in improving livelihoods of the rural communities in Rwanda. It does this in several dynamics where it is an income generating activity, honey (the main hive product) has numerous medicinal value, it supports and greatly contributes to several critical natural processes for example forests conservation and biodiversity among others. Due to its potential to positively impact on the livelihoods of rural communities in Rwanda, the government and key stakeholders have dedicated numerous efforts to support the subsector key of which include the formulation of these guidelines for adoption and implementation. These beekeeping /apiculture guidelines were developed by diverse sub-sector stakeholders with a view to provide an overall framework to develop and implement programs and activities towards developing the beekeeping sub-sector in Rwanda.

In developing these guidelines, the stakeholders carefully considered and incorporated all existing frameworks which include the National Agriculture Policy, Strategic Plan for Transformation of Agriculture – Phase II (PSTA II), Economic Development and Poverty Reduction Strategy, Agriculture Sector Development Strategy (ASDS) and the Beekeeping Strategic Plan. This was done to ensure that the guidelines incorporate the themes, plans and proposed activities in the above frameworks as well as customizing the same to fit the current sector context also taking into consideration recent development and achievements.

These guidelines seek to address several key challenges identified within the apiculture sub-sector which include the widespread traditional attitude and practices to beekeeping, lack of a business orientation to apiculture, lacking strong participation of women and youth, poorly defined institutional structures to support apiculture, poor coordination of sub-sector support actors, lack of technical skills and human resource and limited product development efforts.

The guidelines are guided by the sector vision, mission, six (6) principles and nine (9) objectives as discussed and agreed by the stakeholders. The six supporting principles include one, enhancing private sector participation, two, encouraging greater participation of women, youth and other disadvantaged groups, three, sustainable environmental utilization, four, food security, five, quality control and assurance and finally decentralization of apiculture programs and activities. The guiding objectives are detailed and expounded in chapter 4 while chapter 6 describes the institutional framework for implementing the beekeeping/apiculture sub-sector guidelines.

The guidelines seek to transform the apiculture sub-sector into a viable business enterprise by promoting investments, facilitating market linkages and developing sufficient human resource towards making it the most commercially viable enterprise within the agriculture sector in Rwanda.

Your indulgence into the greater details of the report is encouraged to help you appreciate the sector vision, mission and objectives as well as the proposed strategies to guide stakeholders in attaining the vision and mission.

Chapter 1: Introduction and Background

1.1 Background of beekeeping in Rwanda

Apiculture has been carried out across many generations in Rwanda in its native form and with a high inclination to beekeeping. It plays a critical role in the livelihoods of the rural communities in five dynamics; one, it is an income generating activity; two, the medicinal value of honey and other hive products is invaluable; three, it supports agricultural activities through facilitating critical processes for example cross pollination and improves crop and seed yield; four, it contributes immensely to forests conservation efforts and five, it facilitates healthy linkages between biodiversity (insects and plants) towards sustainable livelihoods¹. The relevance of apiculture can be further assessed in three broad perspectives; the macro, meso and micro.

1.2 Relevance of Apiculture

1.2.1 Relevance of apiculture at the macro level;

Apiculture principally encompasses five sectors of the economy which include economic development, environmental conservation, food security, agriculture and livestock development. For economic and human development it has numerous potential to reduce the National Human Poverty Index estimated at 37.3% in 2006² with a further estimated 40.9% of the rural communities living in extreme poverty³. In environmental conservation, apiculture contributes to the protection and increase of forest cover estimated at 20% and can contribute to reduce deforestation towards establishment of sustainable environmental conditions. A healthy and stable environment is essential for the existence of a vibrant agriculture sector that principally produces food for the Rwandan citizens thus immensely contributing to food security as well as establishing a platform for revenue through local, regional and export trade in agriculture products thereby increasing the country's Gross National Product (GNP).

1.2.2 Relevance of apiculture at the meso level:

At the meso level, apiculture and its associated products, is an essential driver to establishment of small and medium enterprises and thus a high potential avenue for employment creation. It is at this level that bulking, specialized processing, packaging, branding and marketing of honey and other hive products takes place. These are critical processes that contribute to value addition and to enhance competitiveness of the various hive products in the market. Therefore the contribution of the meso level actors and functions cannot be overemphasized in the production, processing and marketing of Rwandan honey as a regionally and globally competitive product.

1.2.3 Relevance of apiculture at the micro level:

Apiculture, and more so in its local context of beekeeping, is also a low-investment and low-input business enterprise that directly generates economic gains for its participants. It provides an avenue for income generation thereby creating employment opportunities as well as contributes to the physical wellbeing of the communities. Honey, the most popular hive product has numerous nutritional and medicinal values on which many citizens and especially those living in the rural areas rely. Other hive products such as propolis, royal jelly, bee venom and bees wax are known to have invaluable medicinal, cosmetic, pharmaceutical and industrial value.

The contribution of beekeeping to supporting natural processes, for example cross pollination, is enormous; beekeeping therefore integrates well with agricultural activities

¹ SNV Rwanda, Beekeeping Value Chain Finance Study; 2009

² United Nations Development Program, Human Development Report; 2007/2008

³ National Institute of Statistics, Rwanda; 2006 and Economic Development Poverty Reduction Strategy 2008-2012

through enhancing productivity of other crops. This function promotes the establishment of other income generating activities that can be supported by beekeeping for example cultivation of high value horticulture and agricultural crops. In addition to these, beekeeping is not a capital intensive business enterprise but has potential to yield income thus increasing its potential as a major income generating activity for marginalized communities. That it is a low-skill activity that can be practiced by men, women, youth, the elderly and persons with physical disabilities makes it a crucial avenue towards poverty reduction and enhancing the quality of life across the social spectrum.

1.3 The Delicate Balance:

Despite the numerous gains realized so far from apiculture and the urgent need to enhance the sub-sectors performance, untamed efforts while positive in their intentions may yield undesirable results. These may lead to the detriment of other sectors which could in the long run negatively affect the very performance of apiculture as well as other essential sectors of the economy. For example, the main challenge in apiculture currently is low production. To address this, honey producers are encouraged to adopt modern hives and increase apiary sizes. While a positive step in itself, the implementation of actions related to this may lead to increased demand for modern hives subsequently increased demand for timber which itself could have severe and irreversible impacts through deforestation and eventual climate change.

Therefore while the vision and desire of all stakeholders within the sector is to see the sector grow and expand to greater levels, this very growth and development need to be effectively planned, managed and monitored. These guidelines therefore form the basis and platform from which the government of Rwanda will plan, manage and monitor the sector in line with the anticipated growth.

CHAPTER 2: THE NATIONAL POLICY ORIENTATION

2.1 Vision 2020:

The Rwanda Vision 2020 clearly spells out the country's aspirations. It is informed by the Millennium Development Goals (MDGs) and it discusses national priorities and capabilities in great detail. The five (5) Pillars of the vision, particularly Pillar 5 (productive high value and market oriented agriculture) are very critical to achieving a greater national development agenda in the 21st century. The first two cross-cutting areas of the vision (gender equality and protection of environment) lie at the heart of the guiding principles for policy actions in economic and social spheres, touching on natural resource-dependent sectors like agriculture. Approximately 90% of the population depends on subsistence agriculture. Agriculture also contributes 40% of the GDP and about 90% of export revenues. The industrial sector is still in an embryonic stage and comprises of factories that process and assemble imported semi-manufactured products. The growth of the agricultural sector will therefore depend on how the nation harnesses these principles. It also follows that all agricultural sub-sectoral policies e.g. apiculture, should embrace these principles. Vision 2020 projects that; agricultural and animal production will have adequately increased both in quality and quantity as well as in terms of added value. It will contribute to food security, the rural incomes, while providing increased surplus for export. Only 75 % of the population will be employed in the agricultural production primary activities in 2010, and 50% by 2020. About 50 % of the cultivated land will be farmed using modern methods by 2020. Rwanda will be approaching the ideal situation as envisioned by the sector stakeholders of a "country that flows with milk and honey".

The role of agriculture in achieving Vision 2020 and MDG number one (eradication of extreme poverty), three (promoting gender equality and empowerment), and seven (ensuring environmental sustainability) cannot therefore be overemphasized.

2.2 Economic Development & Poverty Reduction Strategy (2008-2012):

The EDPRS comprehensively sets directions and targets for achieving the Millennium Development Goals (MDGs) and Rwanda Vision 2020. It is useful to distinguish two sets of policy objectives for Rwanda in 2012. First, there are certain goals which are milestones on a longer term. These include the MDGs which have targets set for 2015, and the objectives of Rwanda Vision 2020 which have targets set for 2020. Since the EDPRS is a mechanism for implementing Rwanda Vision 2020 in the medium term, there is no separate set of targets for Rwanda Vision 2020 in 2012. Second, there are the EDPRS goals themselves which constitute a destination in 2012. These goals include targets which differ from those of Rwanda Vision 2020 and the MDGs.

EDPRS targets six (6) areas to be supported directly by government as growth engines. At the sector level, the main beneficiaries are education (19.8% of the total budget), health (9.2%), transport and ICT (7.2%), agriculture (6.9%), energy (6.1%) and water and sanitation (4.3%). Within the agriculture sector, livestock sector, where apiculture falls, will be developed through comprehensive approaches by developing human capacity, sectoral programs, promoting research and development, prevention of diseases and pests, and addressing the need for water sources to all livestock species.

The EDPRS cross-cutting issues have been integrated across the programmes. Gender is included because men and women experience the process of development and the impact of policy in different ways. Although HIV/AIDS is less prevalent in Rwanda than in many Sub-Saharan African countries, it still poses a potentially serious, systemic threat to economic growth and social development. Given the scarcity of land in Rwanda, the country's dependence on the exploitation of natural resources and its vulnerability to global climate change, assessing the environmental impact at the policy-making, implementation planning and monitoring and evaluation stages will be a key component of the EDPRS. The

economic and social dislocation of the last two decades has compounded earlier problems of marginality and social exclusion.

It is thus clear that EDPRS will attempt to create a clear platform for development, partly through the livestock sub-sector. It means that livestock development activities should be well defined with clear policy frameworks and sub-sector plans. As a component of the livestock sector, apiculture should be developed not only for the production of products that can be traded or used by the society, but also to promote the multiplication of bees that pollinate 80% of crops in the country.

2.3 Agriculture Sector Development Strategy (ASDS):

The ASDS projects that Rwanda will be self sufficient in honey production by 2013 and there will be an extra 13,789 tons of honey by 2020. The strategy plans to achieve this through capacity building of beekeepers and better organization of beekeepers. It plans to increase the number of modern bee hives from 30,151 in 2005 to 322,007 by 2020 which is expected to increase the tonnage of honey produced. Research and Extension services will be strengthened under the strategy to ensure that structures are out in place for the production of high quality organic honey. All this is in the strategy's attempts to increase rural incomes, enhance food security and convert agriculture into a vibrant commercially oriented sector. This strategy is being implemented through initiatives such as the Strategic Plan for the Transformation of Agriculture – Phase Two (PSTA II).

2.4 Strategic Plan for the Transformation of Agriculture II (PSTA II):

This Strategic Plan for Agricultural Transformation in Rwanda – Phase II (PSTA II) was developed in response to the need for an updated strategy for agriculture. It covers a four year period 2009-2012 which ends at the same time as the Economic Development and Poverty Reduction Strategy (EDPRS) in 2012. In developing these guidelines caution was observed to ensure that the issues raised complement the PSTA II which defines a roadmap of the agriculture sector. Most of the key issues have been captured under the previous sections. PSTA II strongly advocates for four themes to transform agriculture which comprise, one, networking and collaboration with the PSTA II secretariat; two, comprehensive and collective annual planning and implementation; three, focus on decentralization and four, recognition of the role of the private sector in sub-sector development. The four and other propositions have been captured in their respective sections.

2.4 The Beekeeping Strategic Plan (2007-2012)

In April 2006, stakeholders in the apiculture sector in Rwanda mandated a task force to develop strategies for the sector. This was in response to the realization that the sector lacks a development roadmap and yet it presents enormous opportunities for economic development as the demand for bee products are continuously rising. The strategic plan captured Rwanda's specific issues, but also incorporated lessons learnt from 'best practices' within the African region. These lessons were customised to be sensitive to realistic situations existent within the Rwandan context in order to promote commercialization of a business oriented driven beekeeping environment. Taking into consideration the challenges and requirements of various segments of the beekeeping supply chain, the need for capacity development services to actors within the chain was identified as the basic foundation upon which the framework would operate.

The strategic plan captured broad interventions to address components of production & training, market development, policy formulation and Monitoring & Evaluation. It also recognized that cost effective and practical interventions are needed to ensure that the maximum number of beneficiaries are reached and impact in the sector felt. From the process perspective, the strategic plan preceded the sector policy under which it should have been developed in the first place. It therefore follows that the need for a policy environment was prioritized among the strategic actions. With these guidelines in place, coordination of interventions and resource allocation to implement the current and future strategic plans would be easy.

CHAPTER 3: SECTOR ANALYSIS AND PRESENTATION

The beekeeping sub-sector in Rwanda has realised numerous gains over the last couple of years. Beekeepers appreciate the importance of modern hives (the langstroth and KTB) over the traditional hives, capacities have been built on honey production and handling, beekeepers co-operatives (although weak) have received numerous support from government and other stakeholders and producers have started appreciating beekeeping as an income generating activity. However, there exist some challenges that underpin development of the sub-sector which need urgent consideration and deliberate attempts to address. The main challenges are discussed in the next section.

3.1 Challenges Facing Apiculture in Rwanda

1. Traditional attitude and practices of beekeeping

The bulk of beekeeping activities in Rwanda is carried out in indigenous ways through use of traditional log and other hives and the practice is dominated by old men (above 45 years) who are not business and profit oriented. Further, it is perceived to be a fully natural process thus minimal efforts are put in to enhance production and it is a common belief that honey is produced mainly for domestic use and brewing traditional liquors. The traditional attitude and perception greatly contribute to stunt growth of the sub-sector thereby remaining a low-yielding secondary activity at the farm level.

2. Lack of a business orientation to apiculture

The traditional attitude and practices of beekeeping contribute heavily to the lack of a business orientation to apiculture. The level of investment in modern beekeeping techniques and practices remains challengingly low (traditional hives account for approximately 90% of total hives in Rwanda)⁴, practicing beekeepers operate small commercially unviable apiaries (1-3 hives) and no records are maintained to monitor performance of the apiaries and assess the profitability level. Most farmers are focused on, and satisfied with, realising income not profit and the low level investment coupled with the little deliberate efforts to set-up and manage the apiaries greatly reduce the production capacity of many apiaries thereby resulting in low yields. The dependence on subsidies and grants from Non-governmental organizations (NGOs) has distorted the business orientation; beekeeping thus largely remains a social activity.

3. Lacking strong participation of women and youth

Beekeeping is currently a male dominated activity mostly carried out by elderly men. This category of producers is more focused on traditional approaches of beekeeping, lack interest enthusiasm and speed to adopt new technologies and are more inclined to income generation rather than profit maximization. As such, beekeeping remains largely subsistence and traditional.

Women and youth are flexible, energetic, ready to learn and are much more likely to appreciate the importance of changing the rules of the game and bringing in a business focus to realize profits from their efforts. A profit oriented mindset would seek to assess level of input vis-à-vis the realized benefits which would trigger the members to think harder as to what can be done to develop the enterprise to make it worthwhile and economically viable or to desert it all the same⁵.

4. Poorly defined institutional structures to support apiculture

⁴ SNV Rwanda, Beekeeping Baseline Survey, Carried out in 17 Districts in Rwanda; 2007

⁵ SNV Rwanda, Beekeeping Value Chain Financing Study; May 2009

Institutional structures and functions within the apiculture sub-sector remain largely undeveloped. Currently several essential functions are conspicuously lacking within the sub-sector; key among these include lack of a specialized research institution mandated to carry out sub-sector research and development activities. Lack of a strong umbrella organization has led to poor planning and coordination of efforts thus in many cases leading to conflicting approaches among actors, duplication of efforts and distortion of the sub-sector. While Rwanda bureau of Standard is enthusiastic to support the establishment of quality control and assurance systems, the resources to implement these ideas are lacking.

5. Poor Coordination of sub-sector support actors

There exists a diversity of support actors whose functions are broadly aimed at supporting growth and development of the sub-sector. The main support actors comprise development partners (non-governmental organizations) government institutions for example RARDA, ARDI and private sector players. In their support function, these actors formulate, fundraise for and implement development based interventions in the sub-sector. These efforts while extremely necessary remain highly uncoordinated thus, in many cases, conflict with each other and lead to duplication of efforts and inefficiencies in resources utilisation. Moreover, these efforts are concentrated in the "high potential for beekeeping zones" thus marginalizing other areas.

Bearing in mind that their goals are universally similar, these efforts need to be effectively harmonised in terms of themes, approaches, activities and to ensure effective and equitable distribution countrywide.

6. Lack of skills and human resource

Lack of skills in the apiculture sub-sector is a major challenge cutting across all levels of the value chain. At the production level, beekeepers lack adequate capacity to effectively set-up and manage apiaries towards increasing the quantity and quality of production. This lack of skills is also clearly seen in the harvesting and handling practices where honey eventually becomes adulterated either deliberately or as a result of ignorance thus lowering its competitive advantage.

At the institutional level, there is lack of enough local highly trained, professional and technical manpower in extension services. Most of the technical and professional expertise is being expensively sourced regionally and internationally which is a short-term solution to long-term needs.

7. Limited product development efforts

Currently, the apiculture sub-sector in Rwanda is more oriented towards beekeeping with honey being the main product. While some actors have initiated efforts to extract and develop other hive products for example propolis, there is a gap at the national level in terms of commitment and dedication of resources to develop other high value bee products such as bee venom, royal jelly, among others. The lack of product development efforts leads to high dependence on honey as the main product thereby reducing the level of benefits to participants. The above and other hive products are known to have greater commercial value than honey thereby seeming to be more commercially viable as compared to honey itself.

8. Weak research and development strategies

Rwanda heavily depends on imported technologies and beekeeping practices to guide the sub-sector. This has seen the direct replication of technologies for example the Kenya Top Bar Hive, the langstroth which are not "tailored" to the Rwandan context. This is as a result of little research efforts by the stakeholders who can add great value in building on the strengths of other regional and international technologies as well as modify to specifically fit within the local context

3.2 Emerging Opportunities

- Demand for Organic, fair-trade and specialty honey is rising in the international markets;
- Rising demand for natural products globally as a result of healthy living habits and environmental concerns; bee products are among the products in this category;
- The emergence of regional trading blocs which may include EAC, COMESA, etc which are much easier to access;
- A lot of research and development globally, hence wider knowledge base to drive the sector
- Integrating beekeeping with other agricultural enterprises e.g. livestock, tree planting, sunflower, etc
- Sectors which are strongly linked to apiculture like environment, tourism and trade are well supported by government. Apiculture adds value to all these sectors in many ways hence its development is critical.

CHAPTER 4: SECTOR POLICY FRAMEWORK

4.1 Sector Vision

To be the most commercially viable enterprise within the agricultural sector in Rwanda

4.2 Sector Mission

To develop apiculture sector in Rwanda as a business enterprise by promoting investments, facilitating market linkages and developing sufficient human resource.

4.3 Broad Sector Objectives

1. To attract investments within the apiculture value chain so as to increase production of bee products;
2. To produce high quality bee products for home consumption and the market;
3. To develop reliable markets for Rwandan bee products;
4. To develop adequate human resource and skills that meet the need of the sector in Rwanda;
5. To establish and / or support the operationalization of institutions that support the growth of apiculture sector;
6. To promote research and development in apiculture at all levels of the value chain
7. To develop effective and efficient systems for the delivery of extension services and other forms of support services in the sector;
8. To maintain and enhance the health and ecosystems of the existing bees stocks, *vis-à-vis* the natural environment; and
9. To enhance information and knowledge sharing among stakeholders.

4.4 Principles of the beekeeping guidelines:

The Apiculture guidelines are guided by the 'triple bottom line'; economic, social and environmental aspects. The importance of these aspects is elaborated in a number of government macro-economic reform tools (such as liberalization, privatisation, etc), Vision 2020 as well as other related sectoral policies and strategies.

Key principles:

- **Private sector participation**

These guidelines recognize that the private sector is the engine of growth of the economy and therefore should drive input supplies, technical services provision, production, processing and marketing of bee products in Rwanda. The guidelines will therefore focus on active participation of small and medium enterprises (SMEs) as well as cooperative organisations.

- **Embracing gender, youth and other disadvantaged groups**

The socio- demographic realities of the Rwandan society are unique and strong. The Rwanda National Population Census (2002) put the percentage of women at 52% and given that agriculture is mainly done by women who face a lot of socio-cultural hindrances to participating in some economic activities. The effects of the HIV/AIDS scourge on the agricultural sector have also been enormous, particularly on the labour force, resulting in reduction of efficiency of human resources in Rwanda. Besides, the recent history and natural occurrences have further added to the brunt, resulting in high numbers of unemployed youths, widows, persons with disabilities and the elderly. Apiculture sector, being a low-input based sector offers a great opportunity to these categories of members of the society to benefit.

- **Sustainable environmental utilisation**

The sustainability of agricultural production depends on proper utilization of the natural resources. Apiculture derives much of its production inputs such as bee hives, bee forage, etc from nature; bees also play pivotal roles in pollination of crops and other flowering plants hence making them one of the most important parts of the flora-fauna coexistence. In addition, a number of projects can be established in national reserves for purposes of tourism, nature conservation, research, etc. The guidelines will ensure that environmental concerns are incorporated in all activities of apiculture, in a way that enables the current generation to meet its needs without compromising the ability of future generations to meet their own needs.

- **Food security**

Being agro-based economy, Rwanda is strategically striving to meet the food security needs of its people. The strategic focus is not only to encourage production of food crops that meet the daily food needs of households but to ensure that products and services from food and cash crops provide a source of employment and revenues to households, enabling them to meet their needs beyond food.

RARDA estimates the national demand for honey will increase from 1,625 tons in 2006 to 13,789 tons by 2020. However, the national demand will be met by 2013 and self sufficiency will be attained, with surplus production rising from 178 tons in 2013 to 13,789 by 2020. The orientation will therefore shift from domestic consumption to a purely market orientation, taking advantage of the fast growing local, regional and export markets. The stakeholders will therefore benefit from the market so developed and achieve a sustainable state of food security.

- **Quality control and assurance**

The vision of the sector will be achieved once a functional quality assurance system is established at all levels of the value chain, both in terms of products and services. Value chain actors require reliable quality services from inputs and support services providers; products for home consumption need to be safe; products destined for the market need to comply with market requirements and consumer expectations. Setting and implementing standards, certification regimes and regulations, and putting in place appropriate monitoring and evaluation mechanisms will therefore be required under this policy framework.

- **Decentralization of Apiculture Programmes**

Apiculture is mainly a rural enterprise and hence requires that service delivery be managed from centres closest to the production centres. Given that about 90% of the population of Rwanda lives in the rural areas, the role of local governments at provincial, district and sectoral levels will be paramount. These apiculture guidelines will seek to rationalize the apiculture programme activities, taking into account the government planning and service delivery framework.

4.5 Policy Actions

The Apiculture guidelines propose broad action areas to meet the objectives of the apiculture guidelines and hence address the challenges, while harnessing the opportunities identified.

OBJECTIVE 1: TO ATTRACT INVESTMENTS WITHIN THE APICULTURE VALUE CHAIN SO AS INCREASE PRODUCTION OF BEE PRODUCTS

Strategies;

The Government of Rwanda shall;

- i) Identify and analyze investment opportunities within the apiculture value chain. Various investment opportunities exist in production, processing, packaging and marketing bee products. Besides, the current sector constraints can be addressed using a business approach i.e. the private sector can invest in meeting these needs hence creating more investments and bringing more benefits to the people.
- ii) Develop Sector profile for apiculture sector to be used as an investment promotional tool. The sector profile shall be updated as and when necessary.
- iii) Undertake investment promotional programs. Through the existing government framework for investment promotion, specific investment promotional activities will be undertaken using the most appropriate forums and means.
- iv) Provide conducive and enabling environment within the apiculture value chain. Government shall make available incentives that are appropriate to encourage the private sector to invest in the sector, mindful of the unique features of apiculture sector.
- v) Support, technically or financially, the private sector (SMES, Cooperatives, farmers, processors, traders, exporters, etc) to facilitate the establishment or running of projects that benefit the economy.

OBJECTIVE 2: TO PRODUCE HIGH QUALITY BEE PRODUCTS FOR HOME CONSUMPTION AND THE MARKET

Strategies;

The Government shall;

- i) Coordinate efforts to establish quality control and assurance systems at all levels of the apiculture value chain.
- ii) Promote certification regimes and facilitate the national certification agency to carry out certification work for actors in the sector. Bee products are easily compromised by unscrupulous persons who introduce foreign materials hence damaging the credibility of stakeholders. Certification would enable consumers access safe and genuine products and stakeholders to produce products that conform to the requirements of citizens and the market.
- iii) Carry out regular surveillance and audits among processors, packers and traders to ensure that products meet the standards.

- iv) Create awareness about the national technical standards for bee products and their importance to actors in the value chain. The technical standards shall be in the language(s) that users can comprehend.

OBJECTIVE 3: TO DEVELOP RELIABLE MARKETS FOR RWANDAN BEE PRODUCTS

Strategies;

The Government shall;

- i) Promote value addition of bee products at farm, processing and marketing levels.
- ii) Undertake market research in different target markets. The strategy recognizes that the need to satisfy the domestic market is of priority, and yet the regional and export markets do present great opportunities to traders.
- iii) Work with stakeholders to establish a market intelligence system. Market intelligence helps to guide formulation or implementation of market entry strategies both from the public and private sector perspective.
- iv) Develop profiles for different bee products. The competent public agency responsible for market and product development shall be required to guide this action.
- v) Develop strong marketing structures that meet the strategic needs of the sector.
- vi) Work with other agencies to encourage the private sector to participate in national, regional and international fora and trade shows

OBJECTIVE 4: TO DEVELOP ADEQUATE HUMAN RESOURCE AND SKILLS THAT MEET THE NEEDS OF THE SECTOR IN RWANDA

Strategies;

The Government shall;

- i) Encourage and undertake training of human resource at all levels of the value chain. Adequate skilled human resource will transform the traditional mentality among farmers and cause a change that promotes agribusiness practices at different levels.
- ii) Introduce a technical training curriculum with specialization in apiculture within existing institutions.
- iii) Establish research and development programs in existing research institutions and / or set up a specialized institution to meet the needs of the sector.

OBJECTIVE 5: TO ESTABLISH OR SUPPORT THE OPERATIONALIZATION OF INSTITUTIONS WHICH SUPPORT THE GROWTH OF APICULTURE SECTOR

Strategies;

These guidelines recognize that public institutional structures which support the growth of the sector are in place but are weak or under-resourced, therefore ineffective. The private

sector umbrella organization which should promote the interests of the private sector is non-existent. In this regard, the Government shall;

- i) Realign and provide adequate resources to public institutions that support the growth of apiculture sector.
- ii) Develop and support farmer training and demonstration centres in existing facilities and/or farms, usually at the sector level, facilitate networking among producers to compare experiences and facilitate learning to ensure that producers take charge of training and inter-farm exchanges. These centres shall have small plots of land on which trials can be conducted with new technologies of production, and they should be continuously open to farmers to visit, observe, question and exchange ideas.
- iii) Put efforts to incorporate the involvement of farmers through increasing their participation in development of new approaches and technologies to ensure that the producers own and utilize the emerging technologies and practices;
- iv) Work with and support institutions and organizations that have direct access to beekeeping farmers and especially co-operative associations to mobilize, finance and build their capacities towards enhancing their capabilities to increase production in quantity and quality.
- v) Proactively seek bilateral donor support for research institutions, develop and implement a strategy to secure long-term funding support for public-sector apiculture research, with provision for eventual participation of the private sector in the funding.
- vi) Support the process of setting up a private sector umbrella organization to address the concerns of the private sector. Government shall also support in definition of the roles of the umbrella organization, which in turn will be the conduit between the public and private sector.

OBJECTIVE 6: TO PROMOTE RESEARCH AND DEVELOPMENT IN APICULTURE AT ALL LEVELS OF THE VALUE CHAIN

Strategies;

The Government shall;

- i) Strengthen the existing research institutions to undertake regular research in different aspects of apiculture.
- ii) Develop programs that will motivate the public and private sectors to be involved in demand-driven research activities aimed at addressing challenges or improving performance in the sector.
- iii) Encourage researchers to develop innovative approaches, processes and technologies that can be commercialised for the long-term benefits of the sector.

OBJECTIVE 7: TO DEVELOP EFFECTIVE AND EFFICIENT SYSTEMS FOR THE DELIVERY OF EXTENSION SERVICES AND OTHER FORMS OF SUPPORT SERVICES IN THE SECTOR

Strategies;

The Government shall;

- i) Promote decentralization of government extension services within the existing government framework.
- ii) Support private service providers to make specialized services available to stakeholders at different levels of the value chain.
- iii) Work in partnership with training institutions to develop training materials to be used in the training of trainers and farmers in apiculture. Special programmes shall be designed to address the needs of women, the youths, the elderly and people living with HIV/AIDS and other vulnerable groups.
- iv) Work in partnership with the private sector to develop a standard for service provision against which the private service providers will be measured. The public extension services shall also conform to this standard.
- v) Ensure that authorised and supported extension service providers are accountable to their respective producers. Provision should be made to encourage the development of female extension agents and their participation, as well as that of district agronomists, in these training programmes.
- vi) Institute and develop specialised training programs for extension agents and allied service providers. This training should be used in part to strengthen the component of extension that links farmers to markets for their products. This is increasingly seen as essential for transforming apiculture.
- vii) Strengthen the role of extension agents as facilitators in the quest for information and knowledge rather than vehicles for the delivery of extension messages in a top-down fashion, and toward working in a participatory learning environment with farmers.
- viii) Implement a programme of certifying producers, including women, as trainers and facilitators after they have been involved in participatory research and extension activities and receive specified types of additional training afterwards to build their capacities in providing reliable, effective and efficient services to actors within the sub-sector.
- ix) Support the process of standardising training programs within the sector.

OBJECTIVE 8: TO MAINTAIN AND ENHANCE THE HEALTH AND ECOSYSTEMS OF THE EXISTING BEES STOCKS, VIS-À-VIS THE NATURAL ENVIRONMENT

Strategies;

The Government shall;

- i) Promote tree planting to provide forage for bees. This strategy will be implemented in tandem with existing government agencies or programs.
- ii) Establish mechanisms to protect or create natural bee reserves to ensure protection of indigenous or existing bee species. Management of the reserves may be vested in the Forestry agency, Wildlife agency or local government, with technical guidance from the Competent Authority.
- iii) Regulate the importation of exotic bees, and other classified materials deemed to be a threat to the sector. This will be in accordance with the actions that will be formulated to support these guidelines.

- iv) Establish mechanisms for protecting natural resources whose depletion or destruction threaten the existence of bees or their habitats.
- v) Set up apiculture-related projects that contribute towards tourism, conservation and other uses related to environmental protection.
- vi) Continuously conduct research into endemic bee diseases and pests that threaten bees or their habitats.
- vii) Regulate use of agrochemicals that may harm the bee population or their habitats.
- viii) Promote the integration of beekeeping within agriculture and agro forestry systems. The role of bees as pollinators will increasingly be important not only to increase yields but also to ameliorate the environment.

OBJECTIVE 9: TO ENHANCE INFORMATION SHARING AMONG STAKEHOLDERS

Strategies;

The Government shall;

- i) Coordinate efforts to establish a database for the apiculture value chain in Rwanda.
- ii) Provide up to date information on apiculture value chain in Rwanda. The Competent Authority shall work closely with the national statistics', information systems and other agencies to generate collate and disseminate the information.
- iii) Create linkages between stakeholders in Rwanda and relevant networks regionally and internationally for purposes of information sharing.

CHAPTER 5: THE STRATEGIC PLAN

The National Agriculture policy provides an overarching framework within which the sector development plans will be developed and implemented. The first national strategic plan for the beekeeping sector in Rwanda, developed in 2007, has been reviewed to provide a basis for any future plans that may be developed in a bid to implement these guidelines. This chapter therefore provides a snapshot of the aspirations contained in the existing strategic plan, revised to suit the vision, mission and principles of the beekeeping guidelines as well as the prevailing national government planning framework, particularly the PSTA II.

The beekeeping strategic plan (2007-2012) identifies five (5) strategic areas where emphasis would be made in the implementation stages. These are;

- Identification of beekeeping areas in Rwanda, with the aim of establishing a traceability system
- Organising the production chain through cooperatives so as to enable producers access business development and technical services, and improve the quality of their products.
- Capacity building of value chain actors, especially beekeepers, and equipping them with knowledge and skills in their work as a business. The strategy prioritises activities such as training of beekeepers with appropriate beekeeping skills, setting up demonstration apiaries, establishing collection centres, technology adoption among others.
- Undertaking market development activities including market studies, value addition, branding & promotions, promotion of international quality standards, and market segmentation.
- Formulation of guidelines for the beekeeping sector. These guidelines would serve to guide all activities within the sector; they would also define linkages between the sector and other sectors, as well as create appropriate linkages between programs and projects that support, directly or indirectly, the activities of the sector.

The strategic plan also identifies areas broadly referred to as 'cross-cutting', including: gender and social inclusion; environment, quality control; financing; research and development.

Within the mainstream apiculture sector guidelines, the 2007-2012 strategic plan has been modified in three ways:

First, the strategic areas have been redefined (in chapter 4) based on the prevailing planning framework with areas of clear emphasis. The definition of the strategies in the strategic plan has largely been maintained except that very specific, value chain-segment-linked interventions have been recommended. For instance, quality standards which originally fell under 'market development' in the strategic plan have been shifted to 'quality control and assurance' in the guidelines. Stakeholders felt it appropriate to address issues of quality under this new definition than under the 'market dimension'.

Second, the definition of strategies followed detailed objectives the strategies are meant to achieve. This ensured that a wider scope of strategies are generated, that could be implemented in the short run, medium term and the longer term. In this regard, the 2007-2012 strategic plan was considered a medium term implementation plan, under which, for example, the formulation of these guidelines fell.

Third, most of the issues considered as *cross-cutting* in the strategic plan, have emerged as *critical issues* and have formed the core principles of the beekeeping guidelines. Some of these issues have been redefined as constrains e.g. quality assurance, financing, research and development, and have therefore been presented as objectives that must be achieved to enable the sector to grow.

CHAPTER 6: INSTITUTIONAL FRAMEWORK FOR IMPLEMENTATION OF THE BEEKEEPING GUIDELINES

6.1 Roles and responsibilities of stakeholders

6.1.1 National level (central government)

Presently, the Ministry of Agriculture and Animal Resources (MINAGRI) is responsible for legal and regulatory issues of apiculture through Rwanda Animal Resources Development Authority (RARDA). There is no specific legal and regulatory framework controlling the apicultural industry in Rwanda; the existing livestock sector legislations are narrow in their application and generally relate to livestock, without elaborations on apiculture. The current institutional restructuring of Government is likely to place RARDA under the proposed Rwanda Agricultural Board (RAB) but still within MINAGRI.

6.1.2 Private sector

In tandem with the overall government policies and strategies, the beekeeping guidelines recognize the private sector as a key partner in apiculture development. They are thereby designed to encourage and facilitate private sector participation through its umbrella organisation. The umbrella organisation will, among other things, coordinate apiculture activities, participate in monitoring implementation of policies and laws regarding apiculture and act as a linkage between the private and public sectors, as well as development partners.

6.1.3 Cooperative organisations

Cooperative organisations in apiculture will be represented in the umbrella organization by their federation.

6.1.5 Development partners

Development partners will be sought to engage with the apiculture sector through the private sector umbrella organisation or through recognised Government frameworks of the time.

6.2 Preparation of sector plans

MINAGRI and RARDA in conjunction with other stakeholders will prepare a development programme with details of organisation, administration, budgets and implementation framework. The interventions detailed in the programme will be translated into timely work plans, with clear outputs and expected impacts in line with the objectives and principles of these guidelines.

CHAPTER 7: CONCLUSION

The Government of Rwanda believes that the enunciation of the Apiculture /beekeeping guidelines will streamline development of the sector and make it economically viable and hence attract more investments. It is hoped that the environment created under these guidelines will enable stakeholders to access the resources, the lack of which has, for a long time, constrained the development of the sector. The environment will also enable stakeholders to take advantage of the opportunities within the sector and translate these opportunities into viable businesses.

A detailed plan of action for implementation of the guidelines will be formulated and proactively pursued with adequate budgetary allocation by the Government of Rwanda, local governments, and other stakeholders.