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The Future In Our Minds

PARTICIPATORY ACTION RESEARCH ON

THE BEEKEEPING VALUE CHAIN

IN THE DISTRICTS OF KAYONZA, GATSIBO AND NYAGATARE

FINAL REPORT

Ikiraro cy'iterambere

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List of Acronyms

ARDI: Association Rwandaise pour la Promotion du Développement Intégré

ADRA: Adventist Development and Relief Agency

BKVC: Beekeeping Value Chain

CSO: Civil Society Organization

DDP: District Development Plan

FIOM: The Future In Our Minds

RAB: Rwanda Agriculture Board

RSB: Rwanda Standard Board

NAEB: National Agriculture Export Board

NGO : Non-governmental organizations

NIRDA: National Industrial Research and Development Agency

PSTA: Strategic Plan for the Transformation of. Agriculture in Rwanda

PAR: Participatory Action Research

EXECUTIVE SUMMARY

Beekeeping in Rwanda has been practiced for many years through successive generations and along inherited patterns. A simple practice that requires little investment, beekeeping has the potential to supplement household incomes. This study aims at facilitating linkages between partners/stakeholders in the Pro Bee Project area and the relevant networks at different levels (nationally, regionally and internationally) this project is currently implemented by FIOM Rwanda with a financial support of Palladium International Ltd via Ikiraro cy'Iterambere Program it emphasize on information sharing, policy dialogue and export market.

The focus of the study is to conduct a Participatory Action Research on the beekeeping value chain in the districts of Kayonza, Gatsibo and Nyagatare so that various value chain actors participate in this research by providing information (success, challenges, opportunities, and threats) relating to the implementation of beekeeping related policies, their consistency and abilities to make beekeeping value chain responsive to local and export market. This study used a Participatory Action Research (PAR), the spider web model (MIDCA, 2010) and SWOT analytical methods to achieve its objectives. A literature data collected from desk (Bibliography research) and field studies (Institution survey) was also used to analyze existing policies strategies, law and data designed for the beekeeping Value Chain in Rwanda.

The results show that the beekeeping sub sector in the study area is far from realizing its potential for earning foreign exchange, as well as generating more income for smallholder beekeepers and other actors in the value chain. Apart from honey none of other bee products such as and beeswax propolis, royal jelly and bee venom are produced and developed by beekeeping actors.

The driving forces of the beekeeping industry in Rwanda and elsewhere in the world currently are large many attempts have been done to introduce modern beekeeping technologies but the study found that the adoption rate at small scale beekeeper's (subsistence level) and trader's levels in the study are still very low. A business approach to beekeeping at micro level of the chain of actors is almost absent. Beekeepers access to appropriate financial services is also lacking. The existing policy, law and strategy related to beekeeping are not well known by the majority of beekeeping actors and a low collaboration among them is very limited and the dialogues among the stakeholders are even absent Three market segments were identified for honey.

There are local lower income brackets consumers mainly by local tradition brewery, national medium to high-income consumers mainly urban based, and tourists from Akagera National Park. No export or other bee products market segment were noted in this study area. This local market is normally reached with table honey processed, packaged and branded by a few beekeeping cooperatives using rudimentary methods. The study noted a new innovative approach currently applied where beekeepers are encouraged to be in active market player and in the sometime considered as stakeholders among others. Other notable findings noted was an increasing participation of women and youth to joining beekeeping cooperatives are that previously dominantly by man.

Specific recommendations have been made among them are to bridge the existing production and marketing knowledge gaps and means. These should be done by: Ensure beekeepers are well organized in to cooperative; Development of innovative technology adaptation models: Promoting Village level training & demo centre (Beekeeping Field School) allowed more farmers in the community/ beekeepers to access new skills/knowledge. Local Authorities are requested to locate such areas for that purpose; Including beekeeping targets in the performance contract of the districts (Imihigo), Establish a regularly beekeeping subsector dialogue / multi-stakeholder platform up to sector levels , and finally , the beekeeping extension services to be moved from RAB (Food security) to NAEB (Marketing & Agri Export promotion) to better assist this sub sector maximizing its fully potential and taken at the same level as other cash food commodities..

Chapter 1: INTRODUCTION

1.1. Background

Beekeeping in Rwanda has been practiced for many years through successive generations and along inherited patterns. A simple practice that requires little investment, beekeeping has the potential to supplement household incomes. In recent years, Rwanda has managed to put in place all the key institutional and legal instruments that are needed to structure Rwanda's long-term development for honey industry. Rwanda produces mostly honey, beeswax and propolis. Rwandan bee products have a good potential, mostly because of Rwanda's excellent natural ecological factors. Rwanda has healthy wild bees, that are resistant to diseases and the natural forests, with wild plant resources, provide a honey made of special pesticide-free, vegetation and the vast amount of eucalyptus trees also produces a special and popular type of honey. The demand for honey is high and Rwandan honey producers have been challenged to increase the capacity. Honey has a high market value especially in the export market. Health-conscious consumers are more aware of its therapeutic properties. It is used to make a variety of foods confectionery and food preservative. Following the opportunities highlighted above, the beekeeping sub sector remains largely underdeveloped.

With financial support of Palladium International Ltd via Ikiraro cy'Iterambere Program, FIOM Rwanda has been implementing a project named "Program for responsive beekeeping value chain in the Eastern Zone of Rwanda" (Pro-Bee Project). In the objective of facilitating linkages between partners/stakeholders in the project area and the relevant networks at different levels (nationally, regionally and internationally) the project emphasizes on information sharing, policy dialogue and export market. To make these interventions viable and evidence-based, one of the activities to be carried out by PRO-BEE project consists of conducting Participatory Action Research on the beekeeping value chain in the project zone (Kayonza, Gatsibo, and Nyagatare) so that various value chain actors participate in this research by providing information (success, challenges, opportunities, and threats)relating to the implementation of beekeeping –related policies, their consistency and abilities to make beekeeping value chain responsive to local and export market. Furthermore, it will be an opportunity to find out how best the issues that beekeeping does face such as low and poor qualified production, as well as inconsistency collaborative mechanisms of beekeeping value chain participants can be addressed.

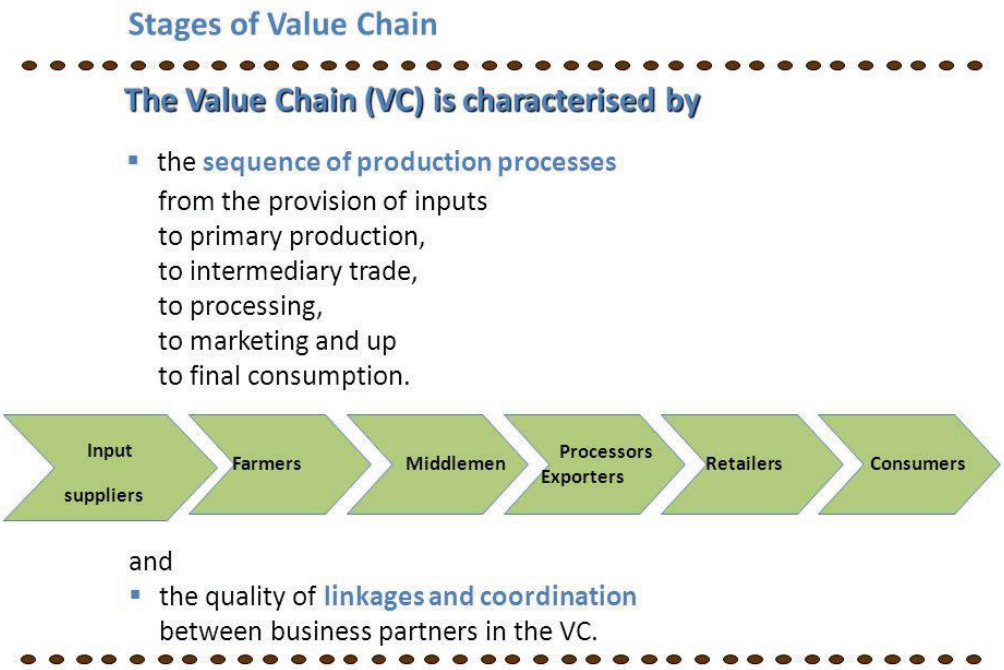


Figure 1: Stage of value chain

Beekeeping in Rwanda has made major advances in the last two decades. Productivity and production of bees have sharply increased and consequently improved rural incomes. Many development organizations (NGO's, CSOs) and government institutions have been involved in supporting beekeeping activities of producer organizations in Rwanda. It is estimated that there are more than 45,000 active beekeepers managing more than 90,000 hives, mainly traditional, across Rwanda. The country has the opportunity to export honey to lucrative European Union (EU) markets given approval of it residue monitoring plan in 2014. While there is some export, it is limited and uneven, with producers unable to meet even local demand, underscoring the huge untapped potential of the sector.

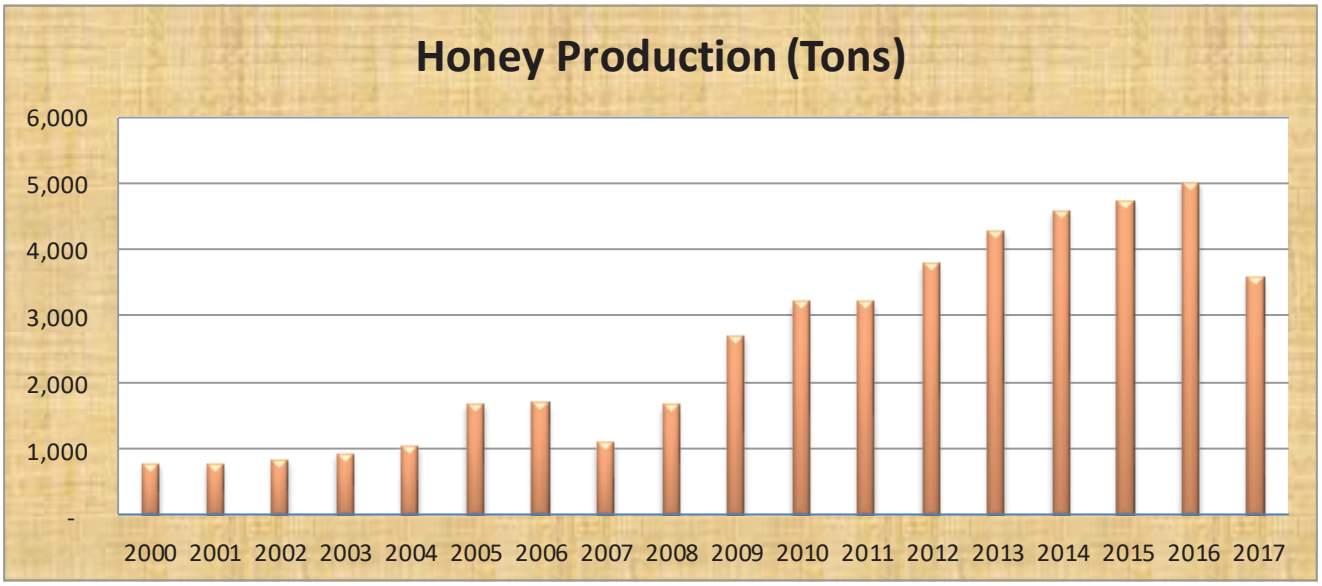


Figure 2:Rwanda Honey Production (Tons) Source: MINAGRI - FERWACAPI

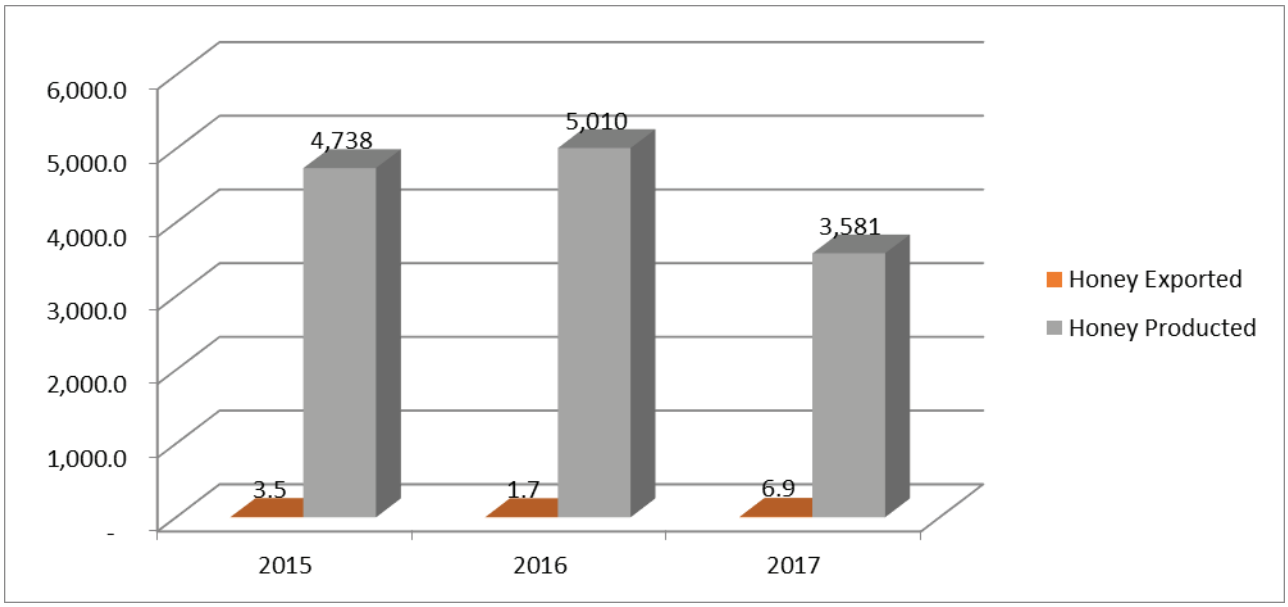


Figure 3: Honey exported vs Honey produced

According to a baseline survey carried out by SNV Rwanda in 2007, across 17 high potential honey production Districts in Rwanda showed that there were an estimated 30,293 Beekeepers of whom 18,430 were men, 7,233 women and 4,630 were youth. The total number of hives was estimated to be 92,971 with 84,255 being traditional log, mud and other indigenous hives while the modern hives were estimated to be approximately 8,716.

In spite of these attempts, the sub sector still needs various interventions. Production is mainly through traditional methods and some modern techniques and equipment introduced have not been successful due to unsustainable implementation of projects, as well as inconsistency collaborative mechanisms of beekeeping value chain participants

Table 1: Profile of potential honey production in the project (Pro-Bee Project) intervention area - Sources: Apiculture Baseline study in Rwanda , SNV 2007

	Gender breakdown			Total N⁰	Hives assessment			Honey	Estimated
District	Men	Women	Youth	Of Producers	Traditional	Modern	Total	Production (Kg)	Income (USD)
Kayonza	1,037	899	204	2,140	4,952	287	5,239	6,206	14,668.73
Gatsibo	1,077	458	213	1,748	5,314	411	5,725	20,007	47,289.27
Nyagatare	865	409	205	1,479	4,725	164	4,889	6,704	15,845.82

Given above constraint, it is important to carry out a Participatory Action Research study which will make the Pro-Bee Project interventions viable and evidence-based data so that various value chain actors participate in this research by providing information (success, challenges, opportunities, and threats) relating to the implementation of beekeeping related policies, their consistency and abilities to make beekeeping value chain responsive to local and export market.

1.2. Objectives of the Study

The general objective of this study was to conduct a Participatory Action Research on the beekeeping value chain in the districts of Kayonza, Gatsibo and Nyagatare so that various value chain actors participate in this research by providing information (success, challenges, opportunities, and threats) relating to the implementation of beekeeping related policies, their consistency and abilities to make beekeeping value chain responsive to local and export market.

Based on specifications stipulated in the terms of references, six specific objectives were defined as follows:

Specific Objective 1: Identify the beekeeping value chain stages/components

Identify the beekeeping value chain stages such as: Inputs/policies/strategies → Beekeeping → Bee-products processing → Marketing → Consumption of bee-products.

Specific Objective2: Identify beekeeping value chain-related policies

Identify different policies attached to beekeeping value chain, select the most contributing policy and assess its effectiveness toward responsiveness of BK value chain in the Eastern zone of Rwanda. The study will analyze the effectiveness of selected policy in terms of the following items:

- ✓ How the policy has effectively delivered on set targets/indicators as outlined in the policy document

- ✓ How the policy has adhered /completed each other with other programs/strategies in this sector of activities.

Specific Objective 3: Identify beekeeping value chain participants

Identify participants or actors of beekeeping value chain and assess whether they are performing to bring about responsiveness of beekeeping. In this line of activity, the study will look at different stages of value chain

- ✓ How are BKVC participants effective to maximize beekeeping income?
- ✓ How are they integrating or adhered to beekeeping-related policies or sector development strategies?
- ✓ How are they collaborating each other? Is there any collaborative mechanism or established dialogue space for BK value chain participant

Specific Objective 4: Assess BK value chain emerging impact

The study shall undertake a systematic analysis of changes brought about in the lives of the beekeepers as well as other value chain actors in the eastern zone. These include changes in the lives of individual members of cooperatives, and changes in the capacity of community groups or cooperatives involved in PRO-BEE project (2 testimonies or stories of most significant changes).

Therefore, determine the extent to which these changes can be attributed to selected policy implementation, and identify some of the other contributing factors to change.

Specific Objective 5: Assess BK value chain potentials and sustainability in the Eastern zone

The study will assess the extent to which is BK a potential business for community development and contribute to sustainable livelihood of value chain participant particularly in rural area.

- ✓ How the BK has been able to integrate existing government, community and other stakeholder structures.
- ✓ Identify the various challenges and solutions that may affect the sustainability and success of beekeeping.
- ✓ Identify gaps and opportunities and bind them to appropriate stage and participants of BK value chain.

Specific Objective 6: Lesson learnt, conclusions and recommendations

This study review all data/information gathered and outline key lessons learnt, conclusions and recommendations; with a particular focus on recommendations to all stakeholders of PRO-BEE project.

Chapter 2: METHODOLOGY

This study used a Participatory Action Research (PAR), the spider web model (MIDCA, 2010) and SWOT analytical methods to achieve its objectives. A literature data collected from desk (Bibliography research) and field studies (Institution survey) was also used to analyze existing policies strategies, law and data designed for the beekeeping Value Chain in Rwanda.

2.1. Study Area

This study was conducted in the districts of Kayonza, Gatsibo and Nyagatare, where FIOM Rwanda are currently implementing a Pro-Bee Project "Program for responsive beekeeping value chain in the Eastern Zone of Rwanda" a neighboring zone of Akagera National Park which is one of four selected areas of high potential in beekeeping in Rwanda due to their location (near the lakes and where several bees' species are likely to live) and their content in various species of plants as these are the main factors for bees to produce high quality and quantity of natural honey. Secondly the buffer zone has a two-fold benefit of providing additional income to bee-keepers who may not have sufficient land to use, and in turn they ensure the protection of the parks boundary and reduce poaching.

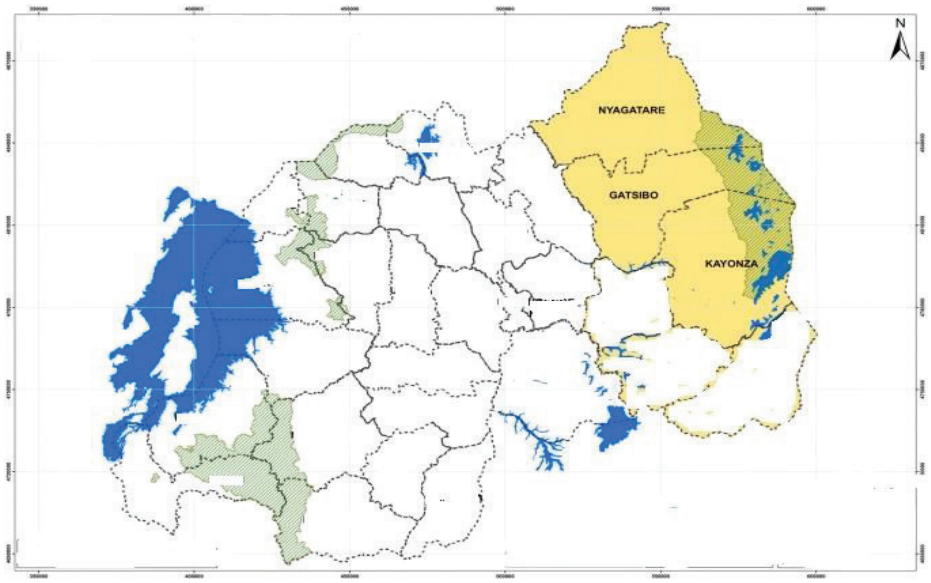


Figure 4: Study Area

2.2. Methodological approach

PAR used, brings together researcher and community members to explore their own practices, to find sustainable livelihoods and to have a greater awareness of their situation in order to take action. A key aspect in PAR is that practices inform knowledge and knowledge informs practices.

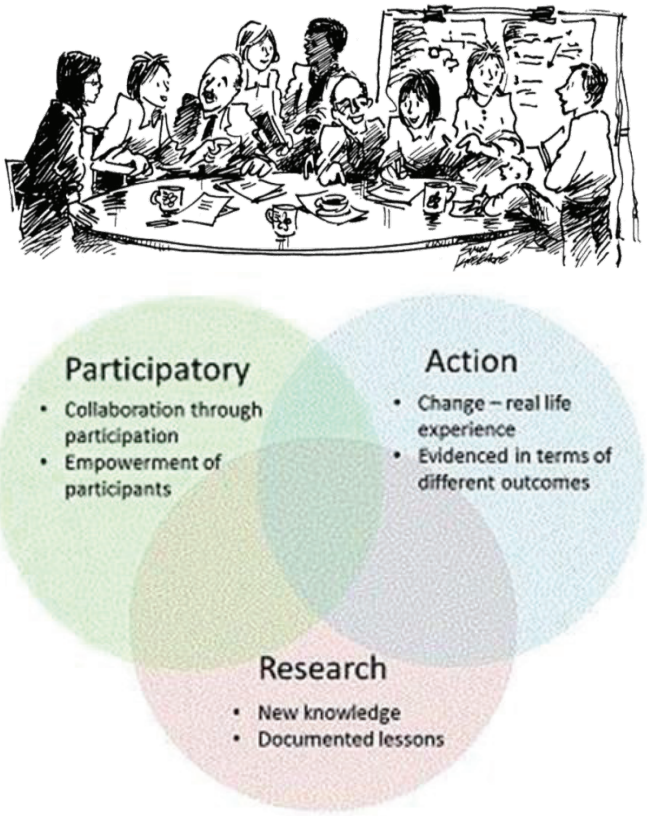


Figure 5: Venn diagram of Participatory Action Research

The spider web model (MIDCA, 2010) was applied to assess whether BKVC stage are performing to bring about responsiveness of beekeeping. Different indicators including effectiveness to maximize beekeeping income, integration or adhered to beekeeping-related policies or sector development, established collaborative mechanism, were used to score which parts of the BKVC stage are performing well and identified gaps. The scoring is done by using MIDCA checklist formats where indicators were scored to monitor individual parts performance and the average score reflects the overall stage performance level.

The SWOT was also used to classify the internal aspects as strengths or weaknesses and the external situational factors as opportunities or threats. Strengths served as a foundation for building a competitive advantage by value chain actors, whilst weaknesses are the constraints internal to the chain. By understanding these four aspects of the beekeeping value chain, actors can better leverage their strengths, correct their weaknesses, capitalize on opportunities and mitigate potential threats.

2.3. Field survey and data collection

PAR was conduct to collected primary data in three different sampled areas of each district. A total of 114 member participated in the survey conducted for beekeeping value chain and distributed per district and category of actors as shown in the table below:

Table 2: Number of participants for primary data collection

SN	District	Number of Coop. beekeeping Minimum 6 person/Coop	Processors/ Semi processors	Traders /Middlemen	Retailers	Local authorities & technicians	Stakeholders: supportive institutions	Total
1	Kayonza	9 54	2	4	3	3	2	68
2	Gatsibo	3 18	1	2	1	3	2	27
3	Nyagatare	4 24	1	2	2	3	2	34
4	National level	-	1	-	2	-	5	7
Total		96	5	8	8	9	11	136

Photo 1: PAR sessions conducted in different sites

2.4. Data analysis

Data for the different value chain actors were entered in spread sheets and cleaned for any outliers and entry errors. The first step of the analysis involved descriptive statistics which were conducted to aid in characterizing beekeeping value chain participants in the districts intervention of Pro-Bee Project. Secondly, a SWOT analysis of the beekeeping value chain was conducted. Factors that influence the internal workings of the chain were categorized into strengths and weaknesses, while those influencing the chain from outside were categorized as opportunities and threats. The aim was to determine the factors that make the chain competitive so as to capitalize on them but also identify those that may weaken or threaten the chain so that their effects could be mitigated.

2.5. Study Limitations

Due to the remote locations and the actual rain season, time required to conduct PAR for most of beekeeping cooperatives in their nearest villages was limited. Therefore PAR were conducted at least in three different sampled areas of each district where farmers were very interested and willing to extend the reflection and discussions on how to improve BKVC in their respective fields.

Another limitation is that the measurement of income was also challenging since most BK Cooperatives did not have proper records of their cash flows and were also not very open about the topic. Recall method was mainly used to discuss questions related to generated income and this is not as reliable as if they had proper records kept.

Preliminary findings of this study will be presented to the key stakeholders with the aim of validating the facts presented, as well as the recommendations/ interventions proposed. Integration of their inputs will led to a better refined study.

Chapter 3: FINDINGS AND DISCUSSIONS

3.1. Beekeeping Value Chain stages/components in the study area.

The Value Chain stages in the study area is characterized by the sequence of production processes from the provision of beekeeping inputs, production, transformation (collection & processing), distribution, consumption and finally the linkage/coordination among beekeeping partners in the value chain. The figure below shows the key interrelated activities/processes that enable honey as the only end bee products utilized in the study area to reach the final consumer right from inputs suppliers.

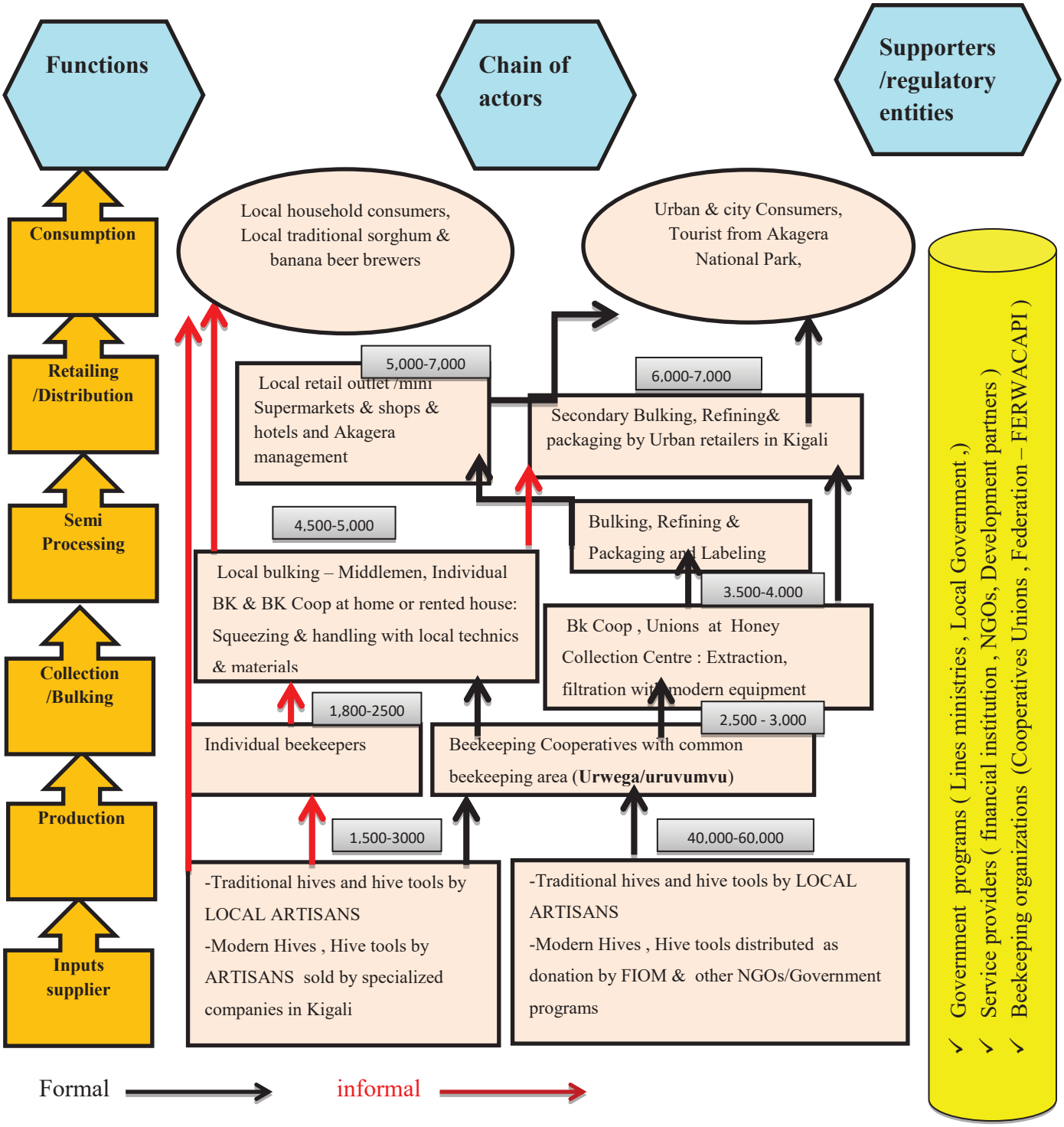


Figure 6: Beekeeping Value chain structures

Analytically, the above value chain structure encompasses the following four levels:

- **At the micro level :** Value chain operators performing basic functions in the value chain
- **At the meso level :** All individuals, Public or private service providers supporting the value chain
- **At the macro level:** Those who Provide enabling framework conditions (policies, laws and regulations governing beekeeping sub sector)

Finally **the meta level:** Representing socio cultural factors facilitating or hindering beekeeping activities linkage, attitudes and trust among the value chain actors.

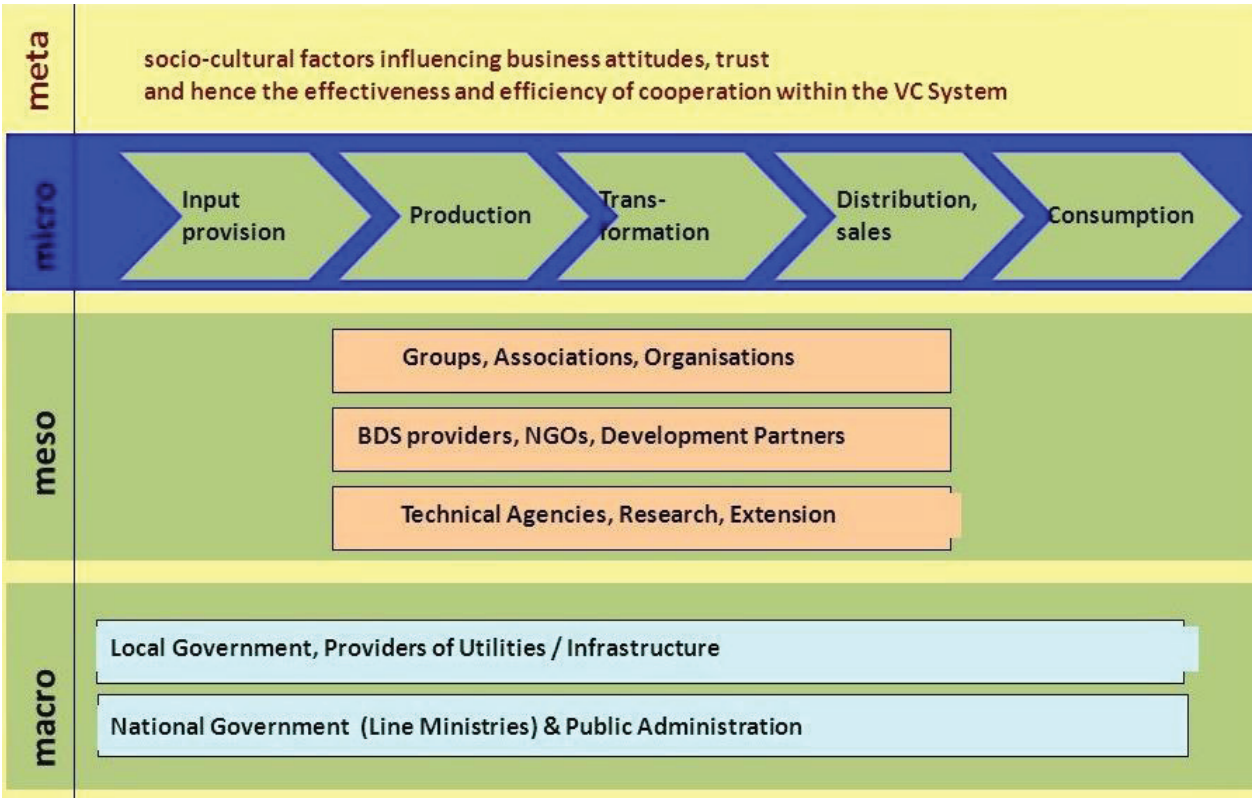


Figure 7: Value chain levels

3.1.1. Inputs suppliers:

The beekeepers use two types of hives traditional hives, modern hives. Most of the traditional hives are either made locally by the beekeepers themselves or made by local artisanal. Hives are very much diversified in shape, volume and the materials used depending on the local materials available for construction.

Most of the improved beekeeping inputs supplied are given by the NGOs. However, most of these equipment are said to require relatively advance hive technicity also being expensive

(40,000 – 60,000 Frw per hive) and not locally available which lowering their utilization by smallholder beekeepers.

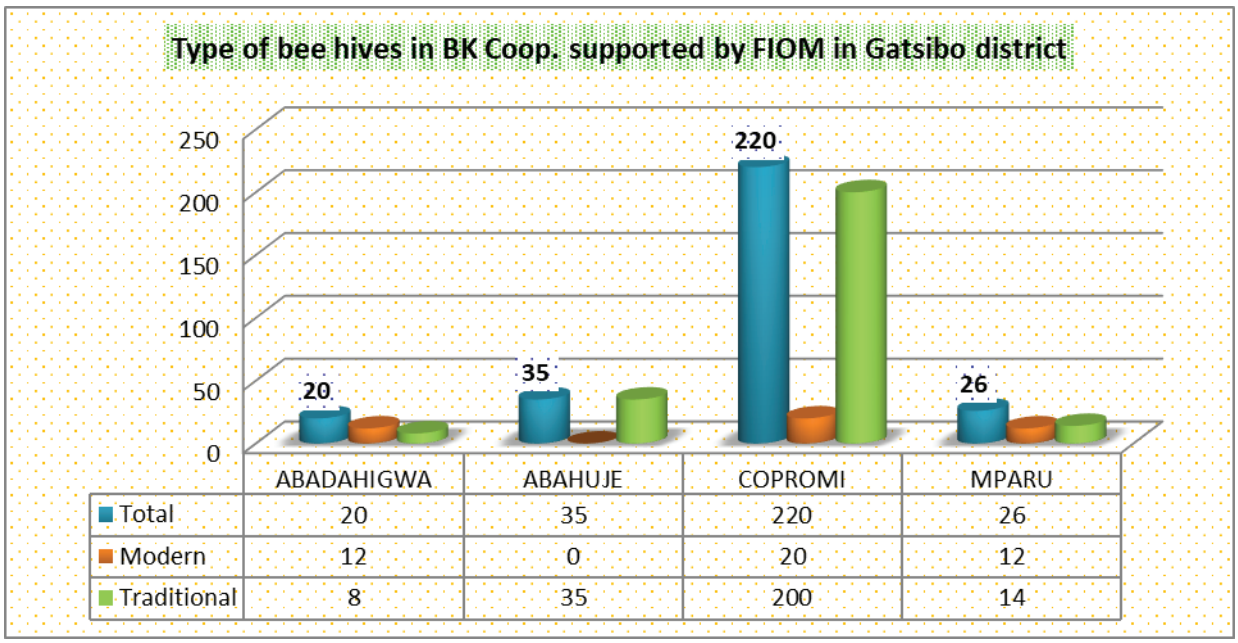
Many beekeepers had beehives that are empty of bees. As a result, these beekeepers fail to supply sufficient honey for the market. Apiary colonisation rates are estimated to be as low as (30-60%), hence there is need to devise methods of increasing apiary colonisation capacities. Few beekeepers use the modern (Top bar & Langstroth hives).

Photo 2: Traditional (Log hive) COPROMI

Photo 3: Langstroth hive (Modern)

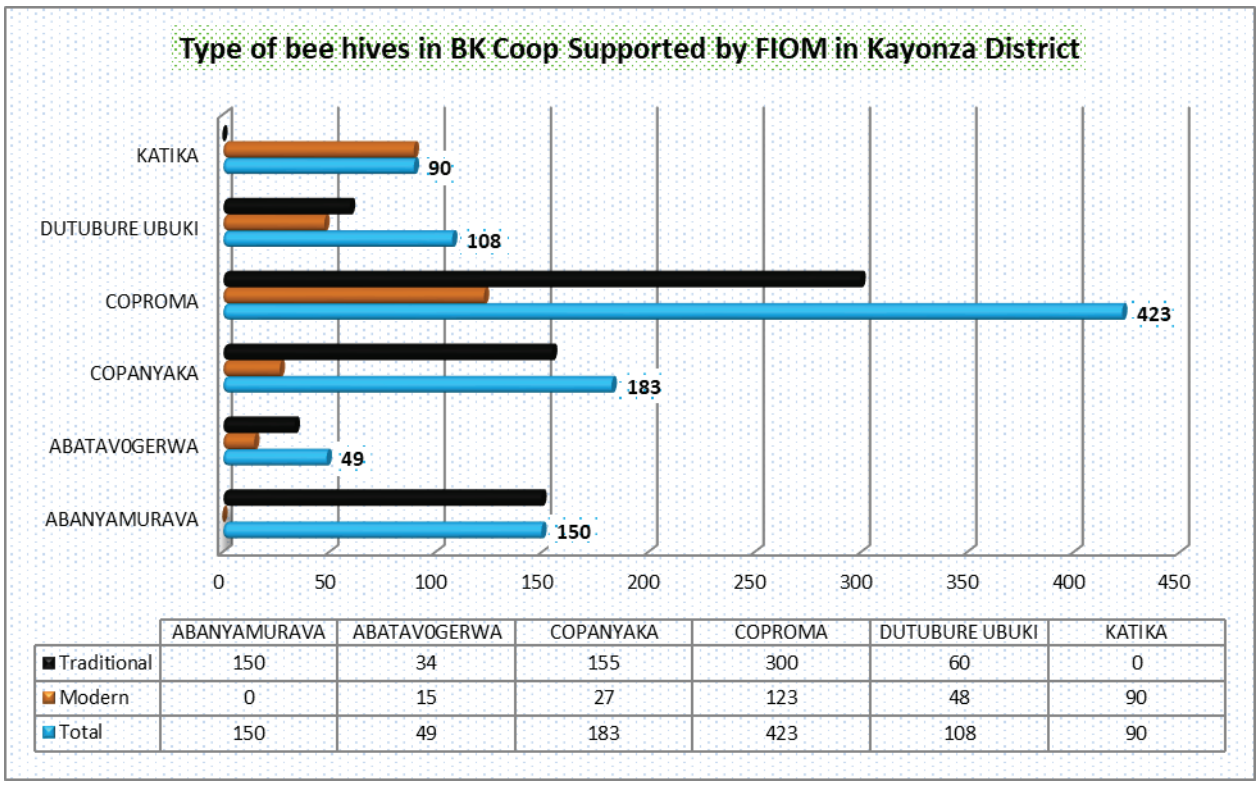
Photo 4: Beekeeping Clothes - ABAHUJE

Most of modern hives and other beekeeping equipment found in place were distributed by government programs or donors, NGOs like FIOM Rwanda, World vision, Akagera management and Oxfam. The figures below….. Show types of bee among BK cooperatives supported by FIOM in the study area.



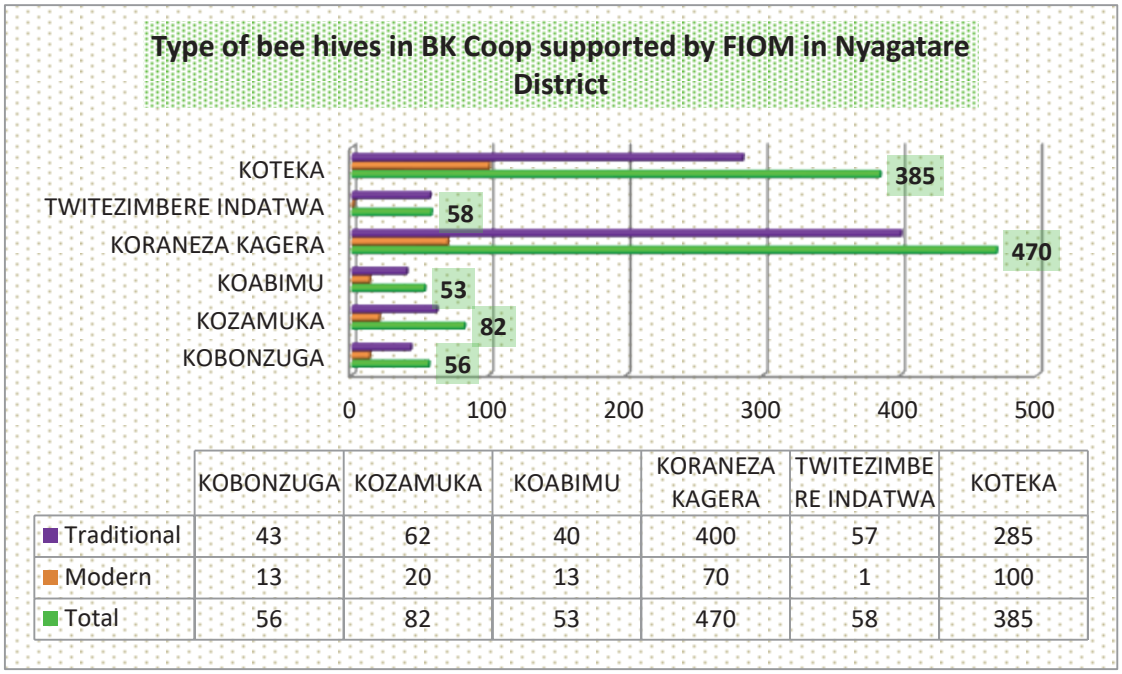
	ABADAHIGWA	ABAHUJE	COPROMI	MPARU
Total	20	35	220	26
Modern	12	0	20	12
Traditional	8	35	200	14

Figure 8: Type of bee hives in BK Coop. supported by FIOM in Gatsibo District



	ABANYAMURAVA	ABATAVOGERWA	COPANYAKA	COPROMA	DUTUBURE UBUKI	KATIKA
Traditional	150	34	155	300	60	0
Modern	0	15	27	123	48	90
Total	150	49	183	423	108	90

Figure 9: Type of bee hives in BK Coop. supported by FIOM in Kayonza



	KOBONZUGA	KOZAMUKA	KOABIMU	KORANEZA KAGERA	TWITEZIMBERE INDATWA	KOTEKA
Traditional	43	62	40	400	57	285
Modern	13	20	13	70	1	100
Total	56	82	53	470	58	385

Figure 10:Type of bee hives in BK Coop supported by FIOM in Nyagatare District

3.1.2. Producers (beekeepers):

Two group/ categories of beekeepers were founded in the study area which includes individual beekeepers; and groups /cooperatives of beekeepers dominated by man but with FIOM interventions the participation of woman and youth are also increasing. I have had the pleasure to conduct PAR with them and it is clear that the beekeepers love their bees in a way that provides a willingness to keep learning, even when there is uncertain or limited payoff.

Beekeeping production in the study area is largely traditional method, mostly at subsistence level, dominated by small-scale farmers with low average yield per hive. The average yield of traditional hives is low and it is only about 5-8kg per hive per year. However, in the potential areas and well managed conditions the amount of honey yield per traditional hive is 10-15kg.

Honey production in the study area is far from realizing its potential for earning local and foreign exchange, and the efficient production of good quality honey from traditional hives is still a long way from being achieved. The commercialization of other high value bee products such as beeswax, pollen, propolis and bee venom is non-existent. Moreover, a few numbers of cooperatives are starting make the industry very important in livelihood improvement, income generation particularly for the population around Akagera National Park in Kayonza District. The figures below….. Show membership among BK cooperatives supported by FIOM in the study area:

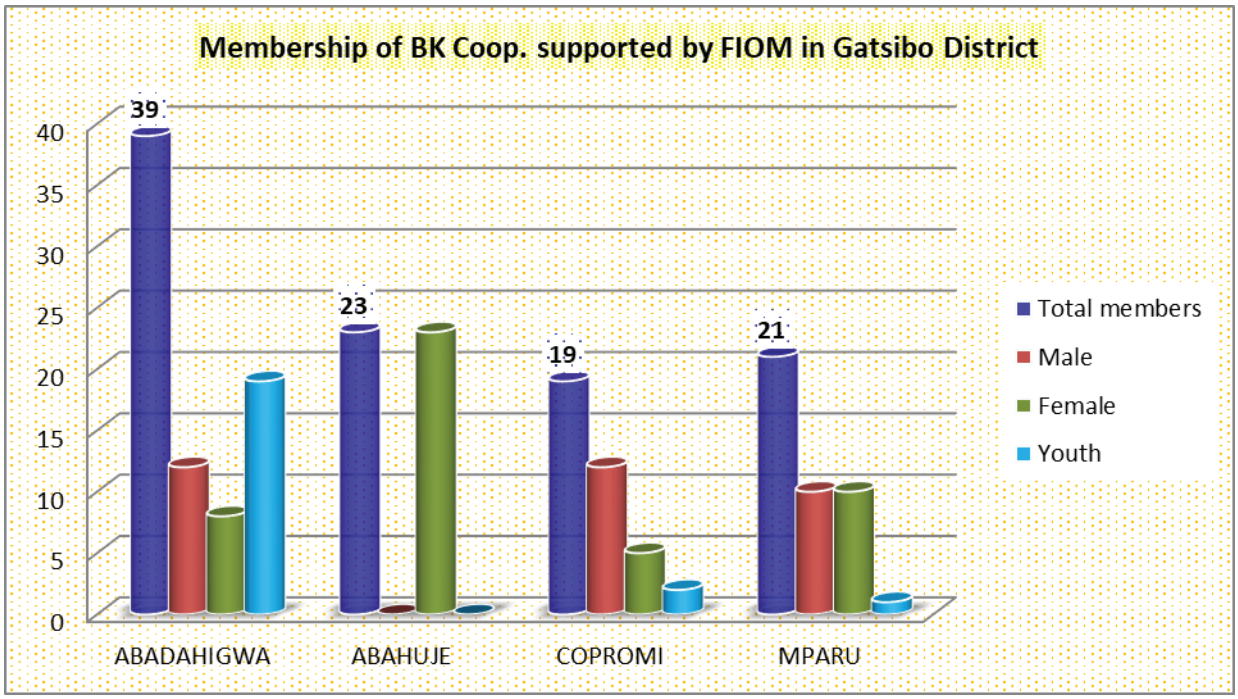


Figure 11: Membership of BK Coop. supported by FIOM in Gatsibo district

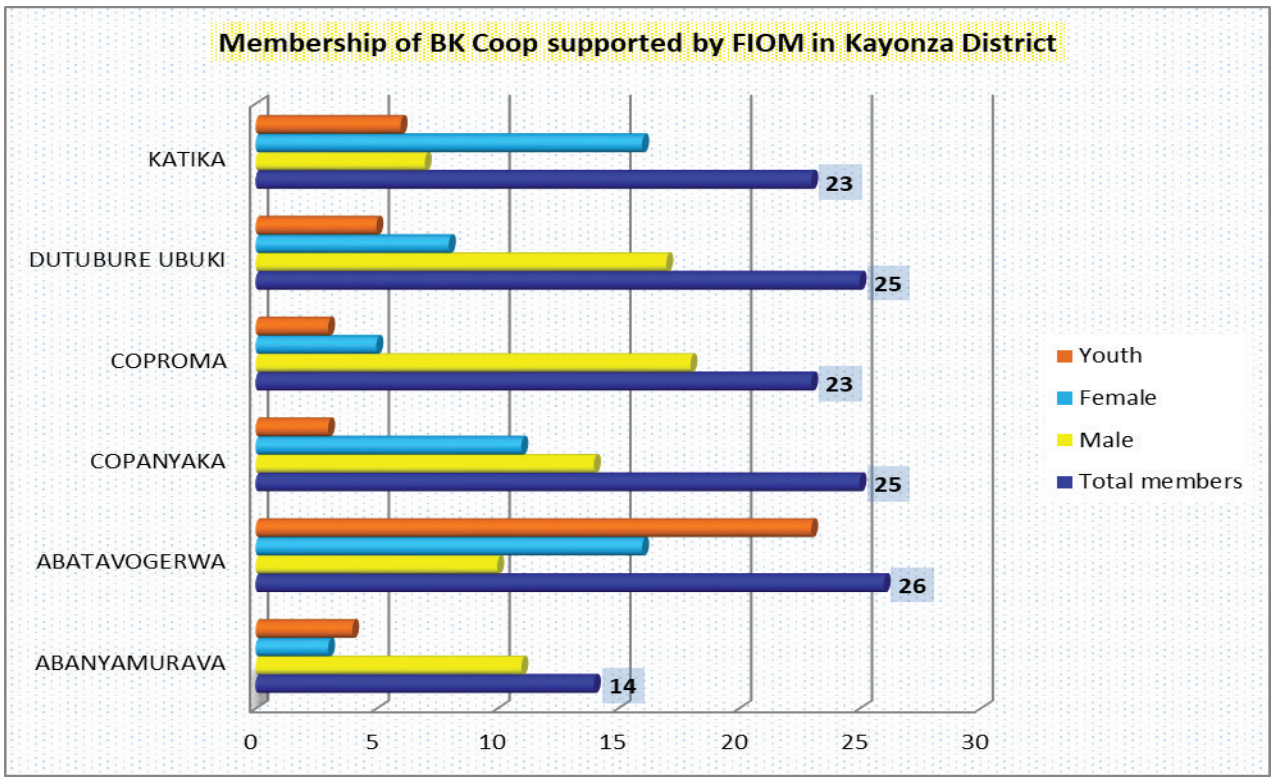


Figure 12: Membership of BK Coop. supported by FIOM in Kayonza District

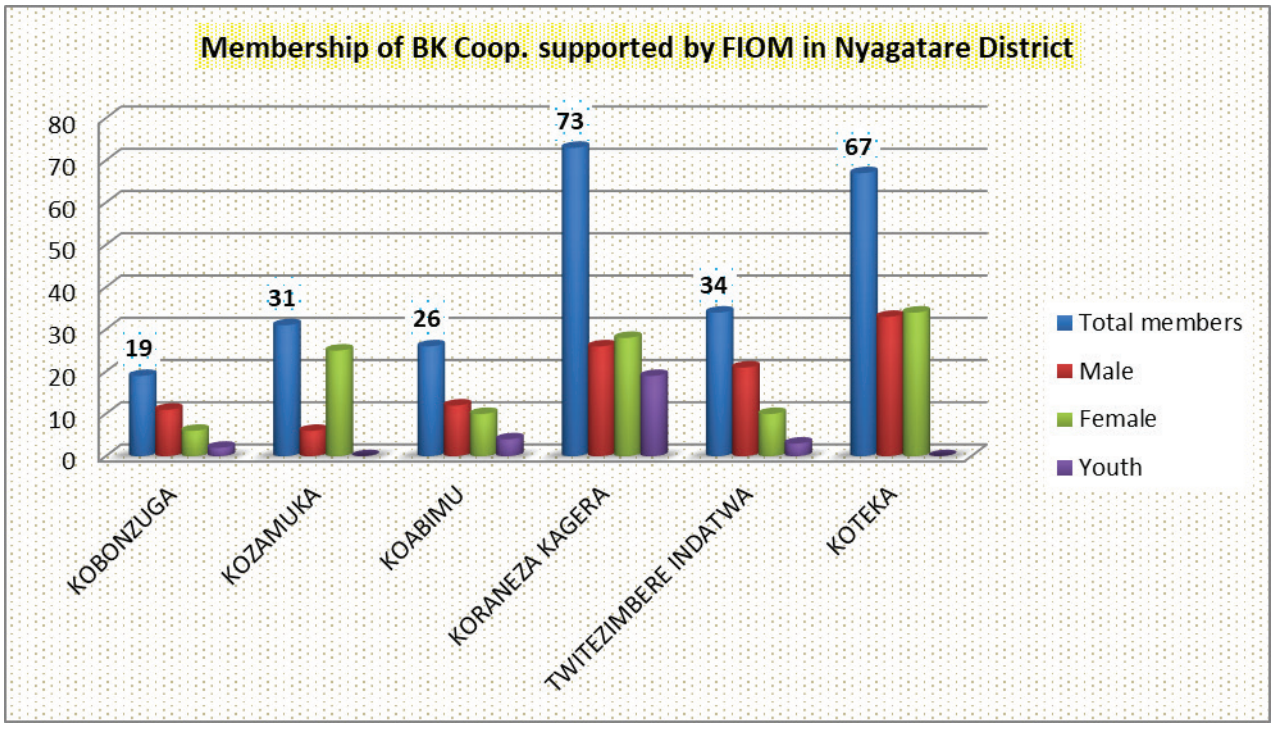


Figure 13: Membership of BK Coop.supported by FIOM in Nyagatare District

3.1.3. Transformation/ Value addition (Collection & Processing)

The process of honey collection and semi processing are carried out by beekeepers where they are requested to collect honey to bulking centres owned by cooperatives (Rented house example COPROMI or Honey Collection Centre Example Kabalondo, KOZAMUKA under construction). Unfortunately some members prefer to collect and sell directly their produces to middlemen; Beekeepers are paid immediately for the honey collected instead of deposit their honey to the cooperatives and being paid later. This is due to weak organization of some cooperatives focused on exploiting only local markets, rather than developing alternative honey markets.

Few cooperatives are engaged in honey bulking and semi processing using appropriate modern equipment and packaging material (recycled beverage bottles) but to better performing a fully transformation function an additional investment and capacity building are necessary to help them check and control quality parameters like moisture content and perform basic traceability procedures. This will enable the cooperatives to request a certification by RSB (S-Mark).

Photo 5: Honey packaging material COPROMI - COPROMA

3.1.4. Marketing

Beekeepers sell their honey through the following channels:

- ✓ Local retail outlet: Bottled and labelled honey is sold directly to mini Supermarkets & shops & hotels and at Akagera management. This is majorly done by few BK cooperatives (COPROMI, Kabalondo & Ndego)
- ✓ At the farm gate: local middlemen/ bulking agents., Individual BK raise adequate quantities of raw honey for sale to end consumers in urban area or to local traditional sorghum & banana beer brewers

Cooperative members are aware and appreciate the need to sell honey to their co-operatives. However, due to capital deficiencies cooperatives lack adequate capacity to purchase all the honey produced by the members. It is from this capital deficiency that middlemen access honey from the beekeepers to be traded mainly in Kigali

The demand for honey has always been high because it has so many uses. In addition to being a natural sweetener, honey has long been used medicinally. From an economic perspective, the potential markets for larger quantities of the produced honey in the eastern province should be locally based due to increases of the population living in urban areas, hotels development and tourists from Akagera National Parks.

3.1.5. Consumption

There is a market for the bee products in the study area. These are the end markets comprising of the domestic consumers who use honey as table food , medicinal and Local traditional brewers There is also a big market for the national and export demand for bee products currently unsatisfied.

Consumer demand for honey was based on quality. This meant that consumers' willingness to buy a particular type of honey was assured as long as the quality of honey was maintained. Thus, sellers must ensure that honey sold on different markets is of good

quality in order to maintain consumer's goodwill and loyalty. However, generic honey marketed in plastic plastic jerry-cans or , plastic buckets negatively impacted on consumer demand for honey. In addition, having honey marketed as a generic product is an indication of the market's inefficiency, which only proved the assertions that sellers are in the honey business only to survive and not as a commercial venture.

Photo 6: Honey Retailers in the study area (Rukomo - Ndego)

3.1.6. Policy and Strategies toward responsiveness of BK value chain in the Eastern zone of Rwanda.

The new Strategic Plan for the Transformation of Agriculture in Rwanda Phase (PSTA IV 2018 – 2024) recognized the beekeeping among the priority in animal resources production systems due to multiple contributions to food security, nutrition, employment, rural incomes and biodiversity conservation and government has put in place an enabling policy, strategy, legal and regulatory framework underscoring the huge untapped potential of the sub sector.

- ✓ Seven years government program 2017-2014 (5000 Tons to 11,500 Tons)
- ✓ Law Nº 25/2013 of 10/05/2013 detailing organization and functioning of Beekeeping in Rwanda.
- ✓ Law Nº 30/2012 of 01/08/2012 governing of agrochemicals,
- ✓ Ministerial orders regulating the beekeeping in Rwanda
- ✓ Code of practice for apiary management, handling and processing of bee-products, RS 153:2012

A National Forum of Beekeeping in Rwanda was also established (FERWACAPI: Rwanda Beekeepers' Cooperatives' Federation), DDP 2013 – 2018 do not mention beekeeping among keep priority subsector in Livestock except Gatsibo district. Districts include livestock rearing in their Imihigo (performance contracts), but do not pay attention to beekeeping production. Today's yearly honey production is only about 5,000 tons which is less than 50% of the production potential. Districts which border Akagera National Park, should produce at least each one 300 tons of honey compare to only 150 tons currently produced,

Other bee products like bee wax remain underdeveloped with significant untapped potential. Thanks to Kayonza District wish to establish a new Honey Collection Centre and Regional Business Centre for Honey Bee Products in the next seven years government program.

The national beekeeping strategy 2012 -2018 has not been finalized and adopted and the current Livestock master plan under development does not capture the beekeeping production. Reason why the sub sector need to develop a new national beekeeping strategy to better guide the existing high level programs by promoting commercialization of a business oriented driven beekeeping environment.

3.1.7. Institutional environment underlying the BK value chain in the Eastern zone of Rwanda.

Apart from core actors at micro level, and in view of the specificity of operations, BK value chain in the Eastern zone of Rwanda.is supported by services providers and organizations/institutions at the macro and meso –level, right from technology development, dissemination, production, processing, transporting and marketing. These include government ministries and related agencies (MINAGRI: RAB and NAEB, MINICOM: RCA, RSB and NIRDA. MINRENA: REMA, RDB) which offers overall guidance, policy direction, quality certification, export development including market research, trade promotion, Local government. NGOs, and financial institutions (Banks and Micro finances)

Taking the example of FIOM Rwanda through a project called "Program for responsive beekeeping value chain in the Eastern Zone of Rwanda" (Pro-Bee Project) they are providing services such as facilitation of multi-stakeholder dialogue, provision of advisory and extension services to the BK value chain actors, and capacity building of beekeeping cooperatives . Akagera management and other NGOs like World Vison, ARDI, ADRA, was also reported to be supporting in acquiring improved hives modern and beekeeping equipment to cooperatives in Kayonza, Gatsibo and Nyagatare districts.

The study found that the provision of these services has so far been heavily dependent on grant resources, limiting their sustainability over time, due to lack accompanying measures for the organization of the beekeeping cooperative, lack of capacity building in basic business skills such as record keeping, and marketing and a limited support at the bulking/ collection and processing levels.

The uniqueness of BK value chain necessitate to establish a regular dialogue/consultation among the stakeholders and to develop of new financial business models to address the lack of credit facilities, limited financial resources to increase production and facilitate investments in modern technology.

3.1.8. Performance of beekeeping value chain participants in the study area

Beekeeping can be a viable business venture at any scale, both as a primary and a supplementary form of income. There are many different ways to profit from keeping bees and the study has found that honey production is the only largest business ventures in Kayonza , Gatsibo and Nyagatare instead of other byproducts business such as propolis, pollen, and wax. Queen rearing are not practiced.

The beekeeping industry in Eastern zone of Rwanda has abundant room to expand, allowing it to be very promising from a developmental position.

Regardless of the great role played by stakeholders at meso and macro level in solving the problems of local beekeepers, the number of beekeepers joined cooperatives, formed union, or adhered to FERWACAPI is still low compared to the potentiality of that area. The current levels of honey collecting, processing and marketing activities are not large enough to have significant impact on the income of BKVC actors . To assess the performance of BKVC participants, Spider web model (MIDCA, 2010) was applied. The result of performance evaluation of is shown in the following figure 3,3,2,2. The following discussion was made. Based on the performance score of the BKVC:

3.1.9. Performance of BKVC at meta level: Socio culture

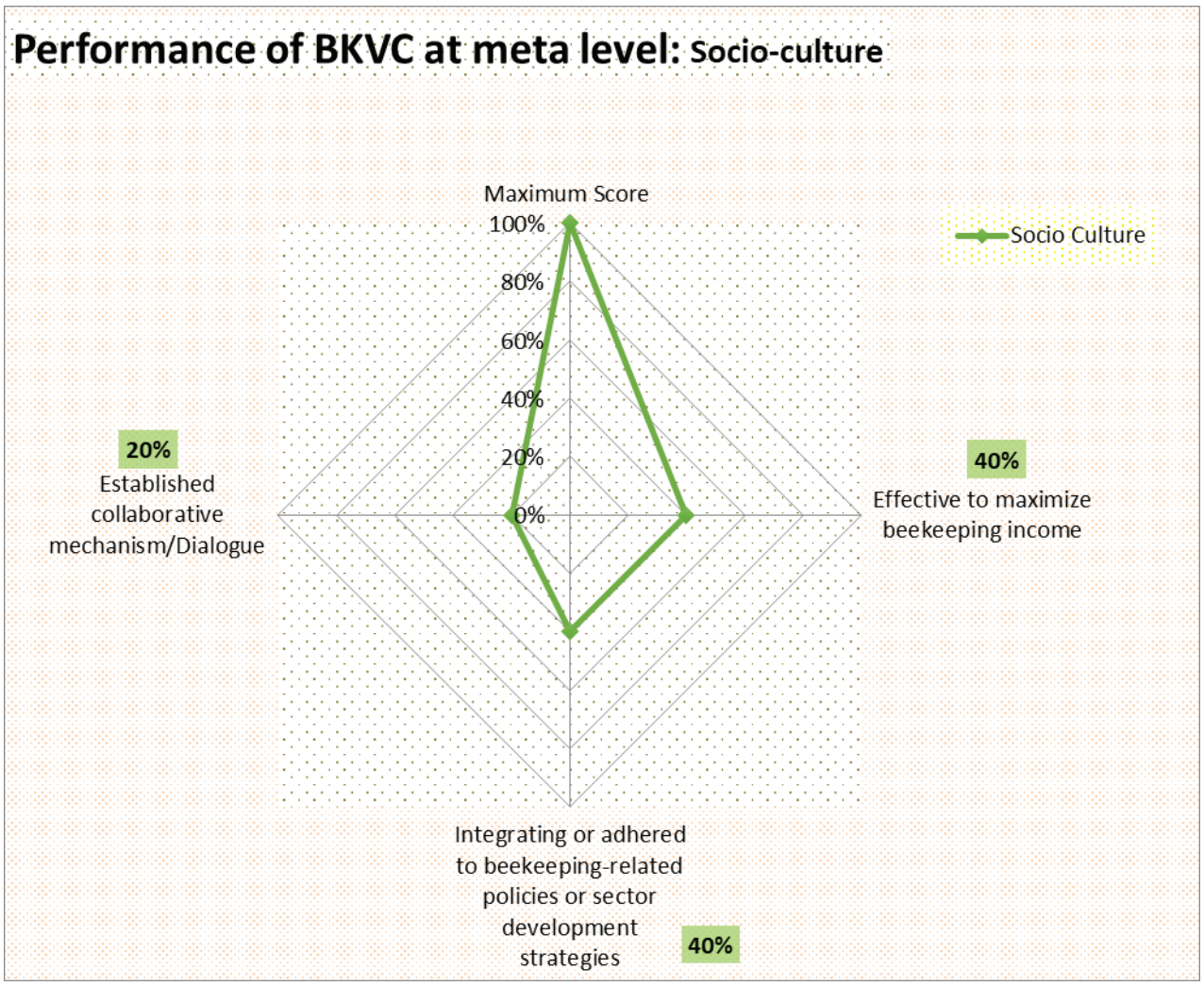


Figure 14: Performance of BKVC at meta level

The study revealed that there are still some socio culture factors limiting the beekeeping adoption or attitudes towards beekeeping: The existing of even less gender inequity in the communities limited women's effective participation in beekeeping. The Low level of women involvement noted lead to the culture that deters women from being away the whole day and coming back home late at night considering that apiaries are far at the forests. In addition their busy domestic chores and the fear of the aggressive honey bees (*apis mellifera*).

Crop production and livestock farming system (mainly cattle keepers) are the mostly mode of agriculture practice in study area. In spite this and other socioeconomic development programs being implemented by government, the beekeeping is often overlooked as being a marginal poor person activities not worth of investment and attention.

In some areas non-beekeepers demonstrated phobia for bees and did not allow beehives to be sited near their fields hence beekeepers had to look for isolated areas to keep their bees. A case was noted in Nyagatare district Karama Sector/ where a non-beekeepers/neighbors farmer has deliberately destroy bee hives of KOZAMUKA.

3.1.10. Performance of BKVC actors at micro level

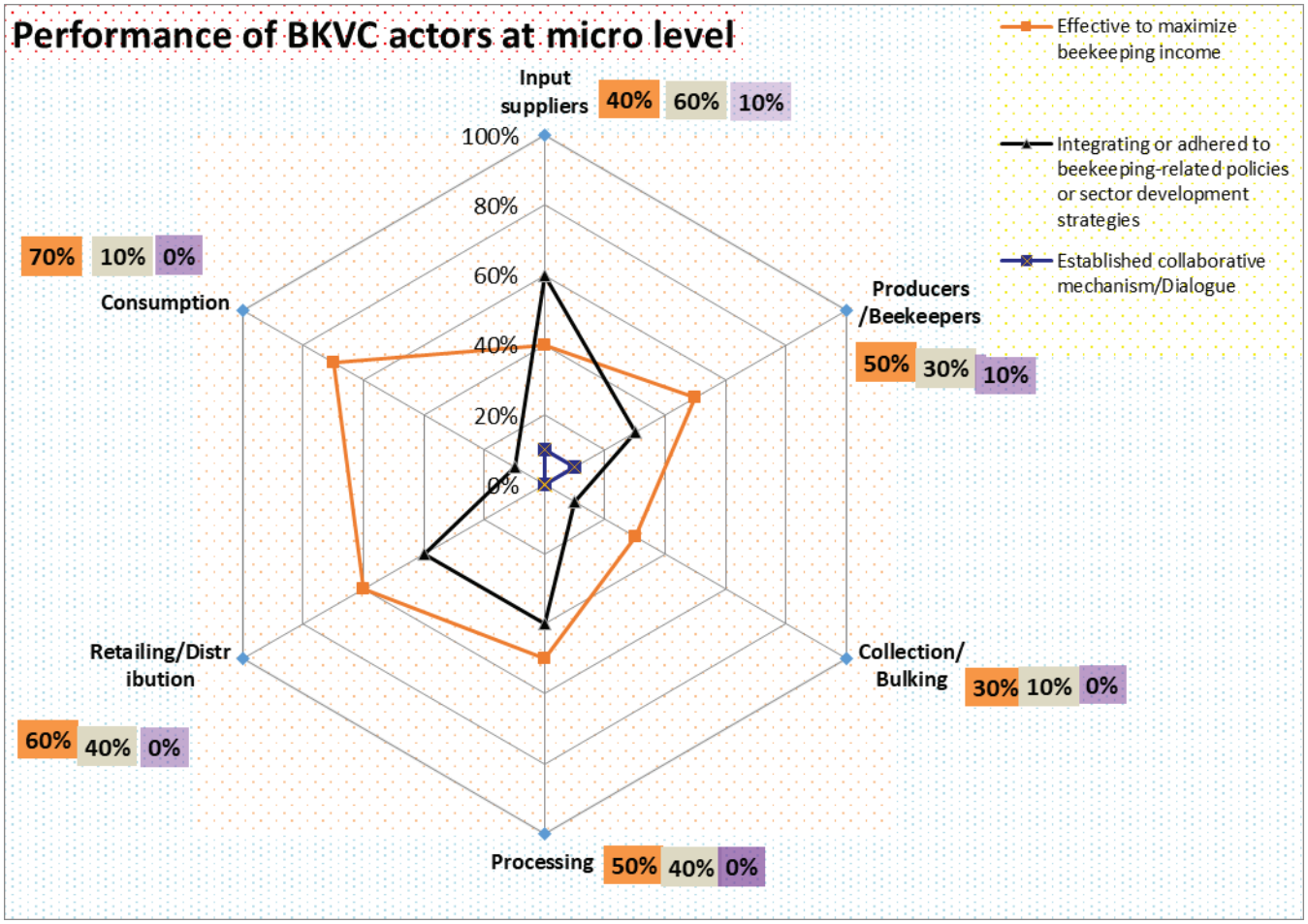


Figure 15: Performance of BKVC actors at micro level

Inputs suppliers: The beekeeping input supply chain is under-developed in the study area jresulting in smallholder beekeepers' low level access and utilization of quality inputs. Most of the honey produced in the zone comes from the use of traditional inputs and practices. The number of private beekeeping input supply businesses is limited and mostly located in Kigali. This created inefficiency in production and supply of quality honey.

Beekeepers has expressed the government to subsidized beekeeping inputs like what applied in crop seed and fertilizer do it The study noted also an alarmingly low colonisation and high absconding rates and beekeepers don't have much alternative way/tools for colony management or catching bee swarm.

Producers/Beekeepers: With limited access to investible financial products as well as inadequate access to improved equipment. In addition, several threats face this stage of the value chain including the drought season associated with climate change causing the bees to

abscond in look for water and nectar, competition for resources with deforestation threatening the life bees and died or absconded bee due to extensive use of agro-chemical. As a result, despite its enormous potential, the development of the beekeeping sub-sector has been hindered. The existing policy, law and strategy related to beekeeping are not well known by the majority of beekeepers and a low collaboration among them is very limited.

Processing: Still at a very basic level with most producers/beekeeping cooperatives being the processors. They use rudimentary technologies/equipment resulting to low quality. Awareness of existing policy, law and strategy related to beekeeping are limited and there is no established framework for dialogue among the processors except spontaneous meeting organizes by supportive actors in the sub sector.

Marketing: The practice of marketing of bee products in the study area is still characterized by inefficient operations. Most honey producers are unable to adapt to better methods of exploration of marketing opportunities and changes in consumer demands. Most of beekeepers fetched very low prices in the market due to selling honey only to fellow community members mainly the local traditional brewery, which in turn has no much income. Cooperatives offer higher prices but very few of the beekeepers are organized in cooperatives which deny them an opportunity to explore collective marketing and increased market accessibility.

Like other actors there no collaborative mechanism among the beekeeping traders and not responsive to the existing policy, law and strategy.

For economic perspectives, a growing number population in the cities, new hotels, restaurants, modern supermarkets, tourists, the demand of quality bee products will continue to increase with a particularity to do business with only traders that can guarantee continued quality honey supply.

3.1.11. Performance of BKVC influencers/supportive at meso level

The beekeeping sub-sector in the study area is supported by a few NGOs (Currently FIOM and World vision) and existing government programs (RAB & NAEB). Only three cooperatives from UCANYA Union in Nyagatare (COMBONZUGA, COZAMUKA, COWABIMU) are currently registered in FERWACAPI. There are limited mechanisms for coordination and information sharing among organizations and partners supporting the value chain. The study noted also a limited technical assistance to beekeepers by sector veterinarian/ agronomist.

There are a number of groups of beekeepers who are not yet registered through the normal ways as cooperative or failure to fulfil the requirement as required by the law due to limited knowledge/ lack of information and awareness of existing policy, law and strategy related to beekeeping and cooperatives creation.

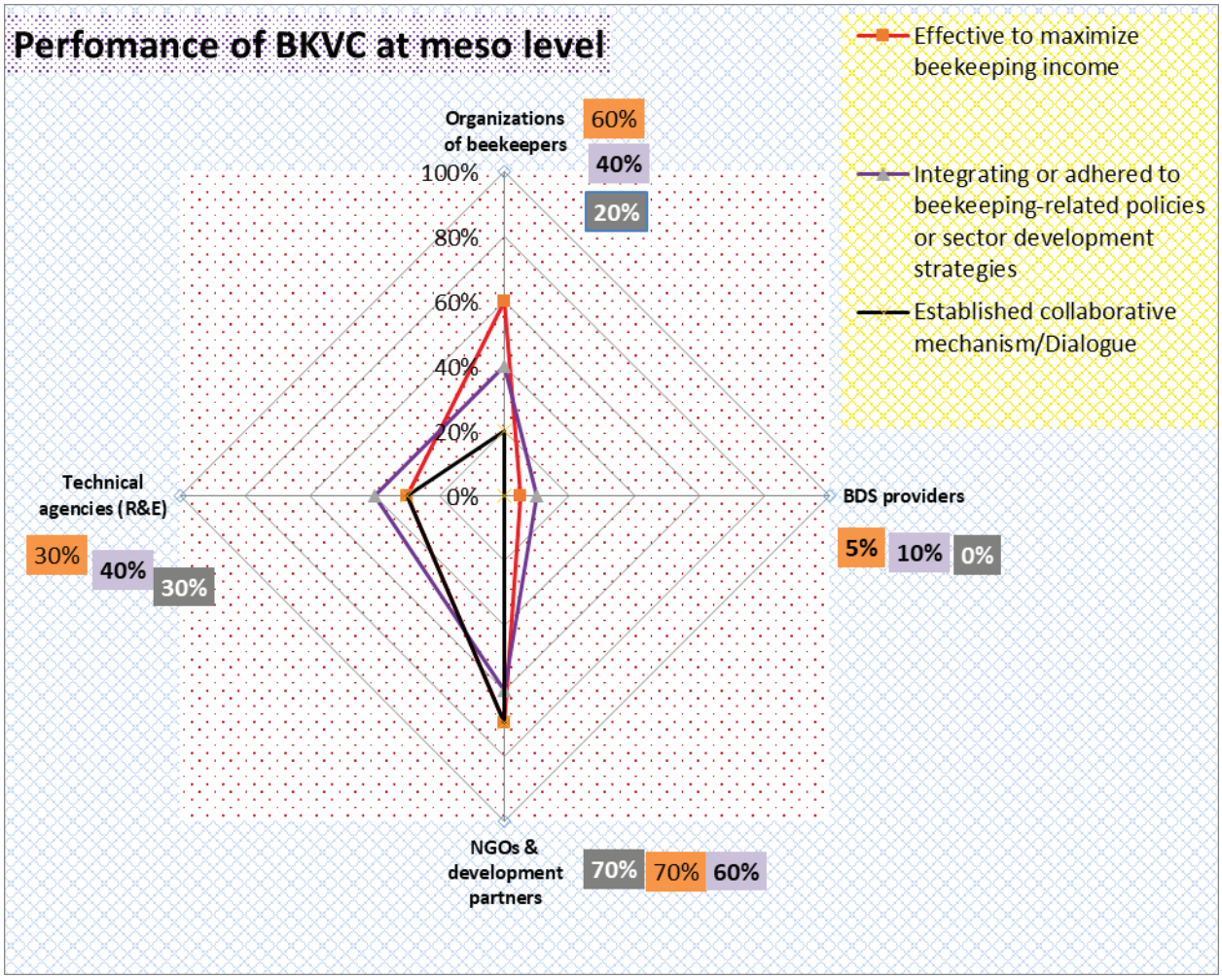


Figure 16: Performance of BKVC at meso-level

3.1.12. Performance of BKVC at macro level

The sub-sector still operates under a draft national beekeeping strategy (2013-2018) which was not validated up to now. The approved one was expired in 2012. (National beekeeping strategy 2007-2012).Lines ministries and Districts include livestock rearing in their Imihigo (performance contracts), but do not pay attention to beekeeping. DDP 2013 – 2018 in the study area do not mention beekeeping among keep priority subsector in Livestock except Gatsibo district.

Government has already established a framework where all stakeholders meet and discuss their contribution toward the development of the district (Joint Action Development Forum JADF) Building collaborative mechanism at all level (National up to sector level) should be strengthened to sensitized more local authorities, technicians and farmers on the existing policy, law and strategy related to beekeeping.

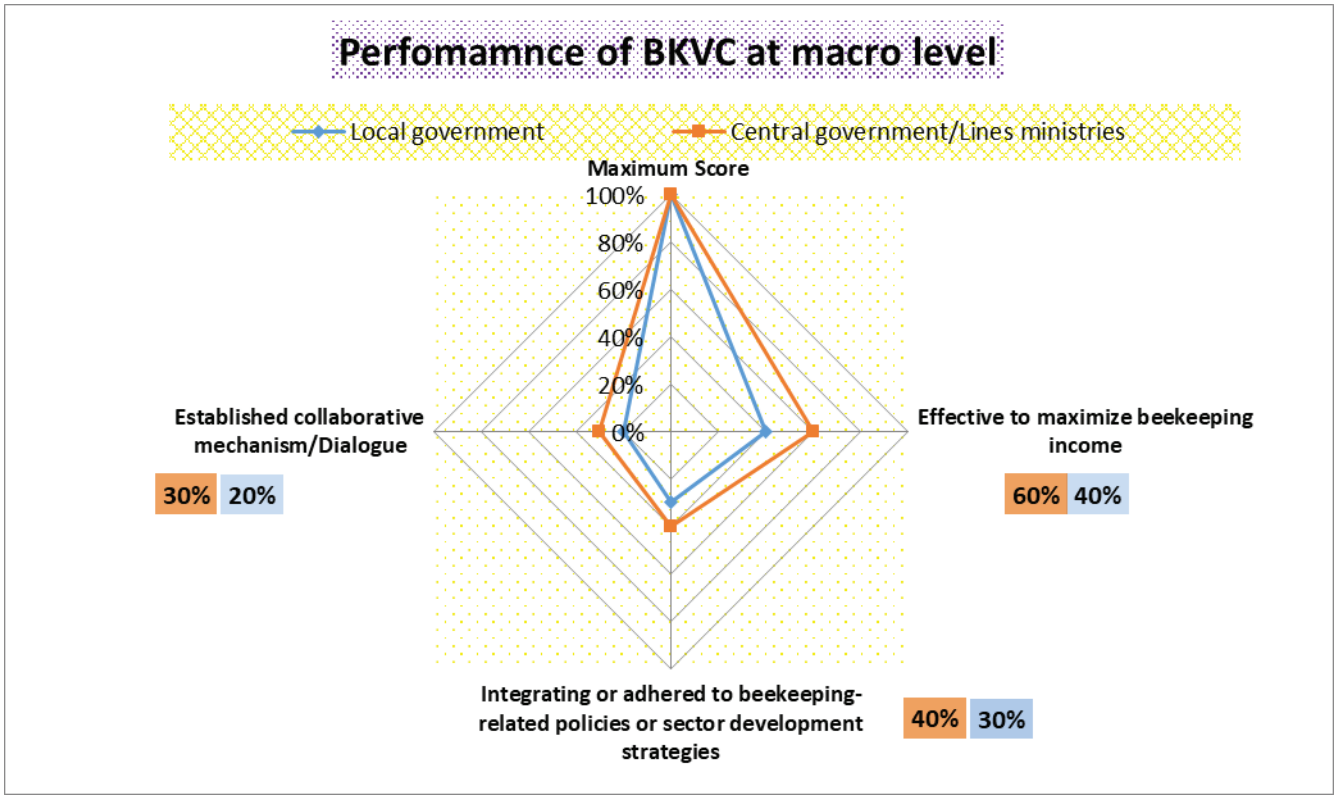


Figure 17: Performance of BKVC at macro level

3.2. Emerging impact among the beekeeping value chain in the study area

Over the years different supportive institutions/donors have implemented projects aim to improve the lives of beekeepers to increase honey production but most of their good intentions have not frequently translated into effective/sustainable programs due to insufficient capacity building through information and knowledge sharing leads to self-reliance and empowerment of the value chain actors.

Despite this difficulties, successful interventions was noted and even if the Pro Bee Project is at its start, the study has revealed some tangible emerging impacts that offer optimism for future perspective of beekeeping sub sector and local economic development in Eastern zone:

3.2.1. Participation of vulnerable & unemployed groups (Women/Youth) in the rural area

The Pro Bee project created awareness on importance of beekeeping activities towards household economy and biodiversity conservation with emphasizes: To the power of collective action carry out beekeeping as a business. Training beekeepers toward analyze and understand their local market environment & opportunities (The Future In Our Minds). Bring the bridge between financial institution and BKVC actors for liquid capital investment which, limit vulnerable & unemployed groups to participate fully in the business and cooperatives to be flexible registering/involving other working force in the communities. All these have

increased the participation of youth and women in beekeeping which provides a unique opportunity to improve rural livelihood, income generation, hence poverty reduction and job creation among the vulnerable/ unemployed groups in the rural area. These are not quite completed yet, but this is a huge milestone. Participants during PAR reported that beekeeping contributes up to 25% of household income and that's the beginning. In some area like Ndego and Kabalondo in Kayonza district they reported up to 40% contribution to household income.

3.2.2. Collaboration between Akagera management and community around the Akagera National Park

Around 300,000 people live along the park boundary creating huge pressure on the park's resources (Rwanda Biodiversity & Conservation Policy 2012). In order for them to survive, people living locally need to value and benefit from them. Finding ways to boost incomes of communities around the park in a way that highlights the link between those benefits and conservation. Beekeeping supportive activities on the park boundary were found to be the only long term solution to mitigate poaching and illegal activities by giving people an alternative source of income. Beekeepers are encouraged to make use of the park buffer zone for keeping the hives. This is a legally designated piece of land along the park boundary providing a buffer between the park and the community.

The buffer zone under increasing pressure for harvesting fuel wood and encroachment to plant crops allowing beekeepers to utilize the buffer zone has a two-fold benefit of providing additional income to beekeepers that may not have sufficient land to use, and in turn they ensure the protection of the parks boundary and reduce poaching.

Six beekeeping Cooperatives in Kageyo, Ndego and in Nyagakonji/ Kayonza district (COPROMA, COPANYAKA, Kageyo Beekeepers Cooperatives, Cooperative Ejo Heza, COTEKA, Cooperative Twitezimbere bavumvu Ndatwa) are currently producing honey in the buffer zone of Akagera National Park. Over 300 modern bee hives have been distributed to these cooperatives. With an average of 30 members per cooperative and 5 persons per household this is currently supporting around 540 households and 2,700 people.

Plans are already underway to expand this initiative/approach further with beehives in the north of the park (Gatsibo & Nyagatare districts) and eventually along the entire buffer zone of Akagera to create a real tangible impact.

Honey produced in this area is mainly sold to Akagera management which will be marketed in Akagera gift shop to tourist as a labeled/ branded AKAGERA BUFFER ZONE – UMWIMERERE HONEY and brings foreign exchange to the country economy.

Figure 18: Honey marketed by six coop. form Akagera buffer zone

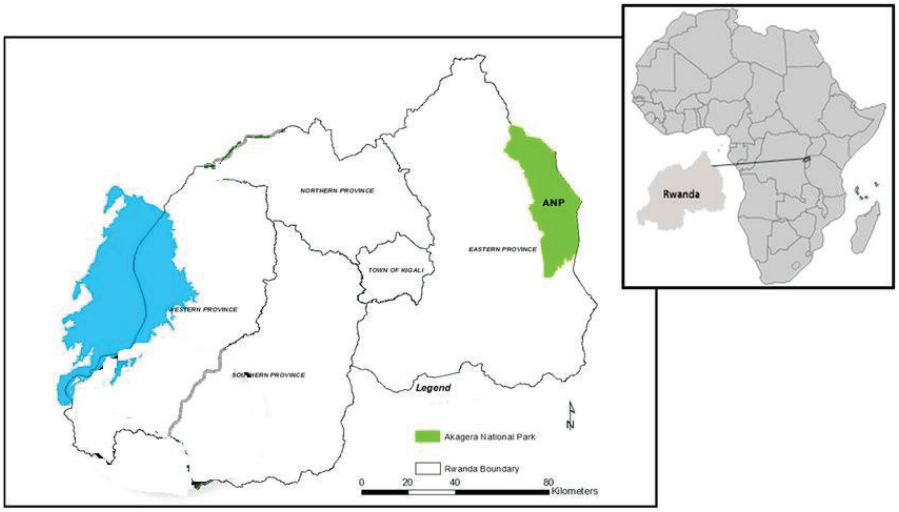


Figure 19: Akagera National Park

3.3. Beekeeping value chain potentials and sustainability in the Eastern zone of Rwanda

The following are the strengths, weaknesses, opportunities, and threats among the value chain actors for the sustainability of beekeeping in the Eastern zone of Rwanda

Table 3: S.W.O.T Analysis for Beekeeping value chain in the Eastern zone of Rwanda

Strengths					
Indigenous knowledge and skills on how to use locally readily available materials to construct beehives	Indigenous knowledge on beekeeping production, Favorable natural resources for beekeeping; Activity requires limited resources	Suitable number of beekeeping cooperatives	Strong linkage between processors and producers/ cooperative its self	Well established relationship with retailers	Increasing income of population in urban area, Healthy conscious consumers willing to pay honey
Opportunities					
Increasing use of beekeeping for the conservation of protected areas, High demand of Beekeeping inputs	Sectoral support from National , local and few NGOs like FIOM and WV Untapped potential of the sub sector (yield & volumes), low opportunity cost of producing bee product	Viable market (labor, and equipment and infrastructure)	High demand for processed and well packed honey , availability of technology, Long Shelf life of the product	Good government trade policy, Increasing of honey price from year to year at national and international market, High demand of bee products, Proximity to big city and tourism area	Importance of bee products in food, pharmaceutical and cosmetics manufacturing industries, Demand still unsatisfied
Inputs suppliers	**Beekeepers/ Production**	**Collection/Bilking**	**Processing**	**Retailing/Distribution**	**Consumption**
Weaknesses					
Dealing with small and scattered beekeepers which is costly and time consuming	Lack of technical know-how and means to adopt improved beekeeping technologies, Inadequate access to finance, Low farm gate price	Poor transporting stocking materials Inadequate business management skills,	Rudimentary processing technics and skills resulting to poor quality (No one have been certified S-Mark by RSB) high costly due to small quantity	Limited access to market information, high costly of due to scattered small scale beekeepers	Limited awareness of the honey quality
Threats					
Long dry season which cause bees to abscond the hives, Unreliable and inadequate information on available beekeeping technologies & tools and demand size, Donor dependency sub sector	Deforestation, Loss of bees from pesticide use, bee diseases and predators, Disillusionment among supportive institutions concerning the effectiveness of beekeeping interventions/production	Unreliable and inadequate information on available technologies and weak business linkages	Unreliable and inadequate information on available technologies and weak business linkages	Competition with illegally Honey traders /Middlemen offering fake, adulterated or artificial honey in markets	Limited trust of the honey quality due to fake, adulterated or artificial honey being sold

Chapter 4: LESSON LEARNT CONCLUSIONS AND RECOMMENDATIONS

4.1 Lesson learnt

4.1.1 Positive experiences

Beekeepers upgraded from a passive recipients to an Active Market players – Supportive institutions passed from a Direct Provider role to just keeping the role of a Facilitator: Thanks to FIOM Rwanda through the Pro Bee Project interventions which come to address the underlying economics that are stifling beekeeping production in Kayonza, Gatsibo and Nyagatare where the sub sector is performing below expectations and far from its full potential. A new innovative approach are currently being implemented which encourage stakeholders to plays a greater role to run a great transformation of beekeeping sub sector in the zone through a series of Capacity building / technical assistance to BKVC actors and to establish a dialogue/multi-stakeholder platform that bring together all actors, supportive institutions in the chain and other stakeholders of different interests (Journalist/media , crop farmers and cattle keepers) to enquire their contribution/role (every one) diagnose the issues and find solutions together in order to produce and market enough beekeeping products. Due to these interventions BKVC actors pass form a **Passive Recipients** to an **Active Market Players** and supportive institutions pass from **a direct provider role** to be **a facilitator** in the sub sector. Finally at the end **Beneficiaries** are considered/or taken also **as stakeholders** which are currently bringing a new hope and dynamism among the stakeholders to revitalize the beekeeping subsector in the zone (Transformation of the current subsistence beekeeping into a commercial beekeeping lead subsector). During PAR session some beekeepers mainly women reported that they were in position to restraint/ abandon their beekeeping activities due to lack support initiatives to expand their knowledge /skills in beekeeping so that they could improve honey production and earning more income.

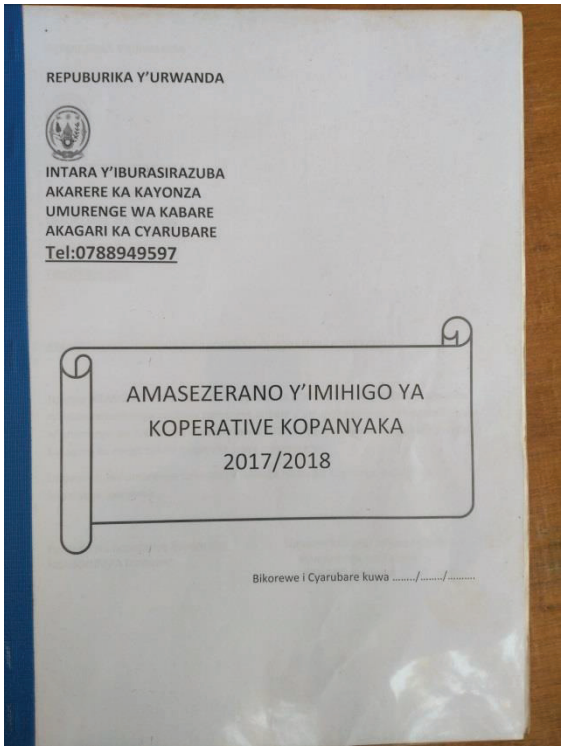
Building Bridges between the BKVC participants and the banking system: FIOM Rwanda has established a steering committee that brings together local financial institution, local authorities and representative of BKVC actors in pro bee project interventions area. This will ensure access to investment capital needed for adoption of improved beekeeping practices which was not exist before.

4.1.2 Negative experiences.

In the study area beekeeping activities is still often overlooked as being a marginal poor person activities not worth of investment and attention (few local authorities and farmers) where some non- beekeepers do not tolerated beekeeping activities / beehives nearing their farms . this situation mainly reported in Nyagatare district

There is a case noted in Gatsibo district where some old experienced beekeepers are not willing to join cooperatives and share their experience with new young beekeepers. A beekeeping cooperative had reported a frequent decolonisation of their bee hives when these individuals comes to visit them and steal the queen rearing without know its importance.

Lack of attention to beekeeping activities at the same level as other agricultures and livestock activities by local authorities/ public and private technician. This is characterized by nonappearance/ or few visit made to beekeepers and the absence of beekeeping targets in their annual performance contract (imihigo) . To show case there is a beekeeping cooperative which has already prepared their performance contract during this 2017/18 and the study has revealed that till now sector authorities has not yet signed it


REPUBURIKA Y'URWANDA

INTARA Y'IBURASIRAZUBA
AKARERE KA KAYONZA
UMURENGE WA KABARE
AKAGARI KA CYARUBARE
Tel:0788949597

AMASEZERANO Y'IMIHIGO YA
KOPERATIVE KOPANYAKA
2017/2018

Bikorewe i Cyarubare kuwa ...../...../.....

Photo 7: Drafted performance contract - COPANYAKA

4.2 Conclusion

The focus of this study is to conduct a Participatory Action Research on the beekeeping value chain in the districts of Kayonza, Gatsibo and Nyagatare so that various value chain actors participate in this research by providing information (success, challenges, opportunities, and threats) relating to the implementation of beekeeping related policies, their consistency and abilities to make beekeeping value chain responsive to local and export market.

The study revealed that honey production in Kayonza, Gatsibo and Nyagatare districts is still contributing a very small percentage to beekeepers' average household income and local economic development. This is much smaller than its estimated potential in these districts and could be linked mostly to constraints come across at micro level of the chain of actors (input supplier, production, Processing and marketing) inexistence of dialogue between actors & stakeholders and finally a limited integrating or awareness of beekeeping-related policies, law or sector development strategies which resulting to the low amount of honey currently produced by most beekeepers.

Three market segments were identified for honey. There are local lower income brackets consumers mainly by local tradition brewery, national medium to high-income consumers mainly urban based, and tourists from Akagera National Park. No export or other bee products market segment were noted in this study area. This local market is normally reached with table honey processed, packaged and branded by a few beekeeping cooperatives using rudimentary methods.

Among the major opportunities of bee keeping in the study area were the presence vast swathes of natural resources mainly on the buffer zone of Akagera Aational Park through the partnership with Akagera management, the current attention of supportive institution at meso and macro level of the BK value chain to develop beekeeping characterized mainly by Pro Bee project interventions implemented by FIOM Rwanda through a financial support of Palladium International Ltd via Ikiraro cy'Iterambere Program. The study noted a new innovative approach currently applied where beekeepers are encouraged to be in active market player and in the sometime considered as stakeholders among others. Other notable findings noted was an increasing participation of Women and youth to joining beekeeping cooperatives are that previously dominantly by man. On the other hand, the major challenges that hinder the untapped potential of beekeeping were high decolonisation rate , shortage of rainfall, agro-chemical poisoning, pests and predators, absconding and lack of technical know-how and means to adopt improved beekeeping technologies,.

Currently in the study area farmers are very susceptible to disturbances in crop & livestock yields, farmer who participates in beekeeping can diversify their income so that down cycles in farming are less impactful on their well-being.

4.3 Recommendations

In the past years, interventions by government, NGOs and other development partners in attempt to remedy the untapped potential of beekeeping production were not effective and well packaged to bring sustainable impact in the sub sector. On the basis of the findings of this study, recommendations are requested to bridge the existing production and marketing knowledge gaps and means. These should be done by:

- Ensure beekeepers are well organized in to cooperative; build their capacity through information and knowledge sharing leads to self-reliance & collaboration and empowerment. Support These cooperatives to branded and certify their product through the Code of practice for apiary management, handling and processing of bee-products in Rwanda , RS 153:2012 . Promote and support of training on processing of secondary bee products to maximize beekeeping income.
- Promotion of the beekeeping input supply services at district level nearest beekeepers
- Development of innovative technology adaptation models: Promoting Village level training & demo centre (Beekeeping Field School) allowed more farmers in the community/ beekeepers to access new skills/knowledge. Local Authorities are requested to locate such areas for that purpose;
- Including beekeeping targets in the performance contract of the districts (Imihigo)
- Establish a regularly beekeeping subsector dialogue / multi-stakeholder platform up to sector levels
- Awareness campaign on existing policy, law and strategies related to beekeeping sub sector among local authorities and beekeeping actors
- Support to design a new National Beekeeping strategy 2018-2023
- Beekeeping projects duration from supportive institutions must be sufficient (3 years) to absorb the learning curve and turn around towards success and sustainability. Extend the duration of FIOM field officer up to minimum 2.5 years supporting beekeeping development in the study area due to lack other reliable technical expertise

- Organize a ‘Beekeeping Week’ (once per year) during which community learn more about beekeeping as a beneficial economic activity, stakeholders spread awareness and educate consumers on quality of honey, while facilitating exchange of knowledge & networking among beekeepers.
- MINAGRI to set up mitigation plan / strategy or research on the effect of use of pesticides and other agro-chemical in crop production that hampers beekeeping
- Local Authorities to facilitate beekeepers to access protected forest areas which are close to their villages for establishment of bee hives (Urwega & Uruvumvu)

In the past , beekeeping supportive institutions often rely on beekeeping only as a source of revenue for local people and self-subsistence, Currently it should be understood as a priority productive segment within a local economic development and earning foreign exchange from export or tourists to the country, That’s why beekeeping extension services should be moved from RAB (Food security) to NAEB (Marketing & Agri Export promotion) to better assist this sub sector maximizing its fully potential and taken at the same level as other cash food commodities..

ANNEXES

Annex 1: ToRs or SCOPE OF THE WORK OF CONSULTANT

The Participatory Action Research will specifically focus on the following points:

1. Identify the beekeeping value chain stages/components

The consultant(s) will identify the beekeeping value chain stages such as:

Inputs/policies/strategies→Beekeeping→Bee-products→processing→Marketing→Consumption of bee-products.

2. Identify beekeeping value chain-related policies

The consultant(s) shall identify different policies attached to beekeeping value chain, select the most contributing policy and assess its effectiveness toward responsiveness of BK value chain in the Eastern zone of Rwanda. The consultant(s) will analyze the effectiveness of selected policy in terms of the following items:

- How the policy has effectively delivered on set targets/indicators as outlined in the policy document
- How the policy has adhered /completed each other with other programs/strategies in this sector of activities.

3. Identify beekeeping value chain participants

The consultant(s) will identify participants or actors of beekeeping value chain and assess whether they are performing to bring about responsiveness of beekeeping. In this line of activity, the consultant(s) will look at different stages of value chain

- How are BKVC participants effective to maximize beekeeping income?
- How are they integrating or adhered to beekeeping-related policies or sector development strategies?
- How are they collaborating each other? Is there any collaborative mechanism or established dialogue space for BK value chain participant?

4. Assess BK value chain emerging impact

The consultant(s) shall undertake a systematic analysis of changes brought about in the lives of the beekeepers as well as other value chain actors in the eastern zone. These includes changes in the lives of individual members of cooperatives, and changes in the capacity of community groups or cooperatives involved in PRO-BEE project (2 testimonies or stories of most significant changes). Therefore, determine the extent to which these changes can be

attributed to selected policy implementation, and identify some of the other contributing factors to change.

5. Assess BK value chain potentials and sustainability in the Eastern zone

The consultant(s) shall assess the extent to which is BK a potential business for community development and contribute to sustainable livelihood of value chain participant particularly in rural area.

- How the BK has been able to integrate existing government, community and other stakeholder structures.
- Identify the various challenges and solutions that may affect the sustainability and success of beekeeping.
- Identify gaps and opportunities and bind them to appropriate stage and participants of BK value chain.

6. Lesson learnt, conclusions and recommendations

The consultant(s) shall review all data/information gathered and outline all key lessons learnt, conclusions and recommendations; with a particular focus on recommendations to all stakeholders of PRO-BEE project. The consultants will share findings of this research with FIOM Rwanda management team and finally present them to all stakeholders of the PRO-BEE project for validation.

The consultant is expected to lead and coordinate this exercise in close collaboration with FIOM Rwanda staff and the representatives of beneficiaries of the project. The consultant(s) is/are expected to adopt a holistic approach in conducting the evaluation. To this end the consultant(s) is/are expected to use participatory evaluation techniques to gather both quantitative and qualitative data, and primary and secondary data and information that would adequately provide answers to all the questions and issues raised under this section.

Annex 2: Full and complete data,

2.1 Data on BK cooperatives supported by FIOM Rwanda in Kayonza and Gatsibo

NO	Name of cooperative	MEMBERSHIP				NO OF BEHIVES			LOCATION	
		Total	M	F	youth	Total	Modern	traditional	DISTRICT	SECTOR
1	ABANYAMURAVA	14	11	3	4	150	0	150	Kayonza	Murama
2	ABATAVIGERWA	26	10	16	23	49	15	34	Kayonza	Rukara
3	COPANYAKA	25	14	11	3	183	27	155	Kayonza	Kabare
4	COPROMA	23	18	5	3	423	123	300	Kayonza	Ndego
5	DUTUBURE UBUKI	25	17	8	5	108	48	60	Kayonza	Kabarondo
6	KATIKA	23	7	16	6	90	90	0	Kayonza	Kabarondo
7	ABADAHIGWA	20	12	8	19	20	12	8	Gatsibo	Kiramuruzi
8	ABAHUJE	23	0	23	0	35	0	35	Gatsibo	Kiramuruzi
9	COPROMI	17	12	5	2	220	20	200	Gatsibo	Rugarama

10	MPARU	20	10	10	1	26	12	14	Gatsibo	Rwimbogo
TOTAL		**216**	**111**	**105**	**66**	**1304**	**347**	**956**		

2.2. Data on other BK cooperatives in Kayonza and Gatsibo districts

2.2.1.KAYONZA

No	Name of Cooperative	Number of members		Sector
		Males	Females	
1	TWITEZIMBERE RUGARAMA	9	6	Kabarondo
2	TWISUNGANE Rwimishinya	33	19	Rukara
3	DUHUZIMBARAGA	11	8	Rwinkwavu
4	ABAHAGURUTSE	6	7	Rwinkwavu
5	KO.A.B.K	8	5	Mwiri

2.2.2.GATSIBO

No	Name of Cooperative	Number of members		Sector
		Males	Females	
1	GIRUBUKI	12	7	Kiramuruzi
2	COPAKI	13	8	Kiramuruzi
3	COPRAPIKA	11	13	Kageyo
4	KOHAMU	12	11	Rwimbogo
5	DUKUNDUMURIMO	16	7	Gitoki
6	COABK	11	5	Kageyo
7	INKOMEZAMIHIGO	17	9	Kabarore

2.3. Data on cooperatives supported by FIOM in Nyagatare districts

No	**Name Cooperative**	**Membership**				**Number of Hives**			**Location**	
		Total	**M**	**F**	**Youth**	**Total**	**Modern**	**Trad.**	**Sector**	**Cell**
1	KOBONZUGA	24	11	6	2	56	13	43	GATUNDA	Kabeza
2	KOZAMUKA	31	6	25	0	82	20	62	Karama	kikwanzi
4	KOABIMU	22	12	10	4	53	13	40	MUKAMA	Kagina
7	KORANEZA KAGERA	54	26	28	19	470	70	400	Karangazi	Ndama
8	TWITEZIMBERE INDATWA	31	21	10	3	58	1	57	Karangazi	Ndama
9	KOTEKA	67	33	34	0	385	100	285	Rwimiyaga	Karushuga

2.4. Data on other BK cooperatives in Nyagatare districts

		Membership				*Number of Hives*			*Location*	
SN	**Name Cooperative**	**Total**	**M**	**F**	**Youth**	**Total**	**Modern**	**Trad.**	**Sector**	**Cell**
1	KOKOYIKA	96	40	56	0	17	17	0	KARAMA	Bushara
2	DUKOYI	28	20	8	0	49	11	38	Tabagwe	Nkoma
4	KOYAMUKA	22	18	4	0	142	4	138	Katabagemu	Rebero

2.5 Details total score on the performance of BKVC Participants in Eastern zone

		Maximum Score	Effective to maximize beekeeping income	Integrating or adhered to beekeeping-related policies or sector development strategies	Established collaborative mechanism/Dialogue
meta	Socio culture	100%	40%	40%	20%
micro	Input suppliers	100%	40%	60%	10%
	Producers /Beekeepers	100%	50%	30%	10%
	Collection/ Bulking	100%	30%	10%	0%
	Processing	100%	50%	40%	0%
	Retailing/Distribution	100%	60%	40%	0%
	Consumption	100%	70%	10%	0%
meso	Organizations of beekeepers	100%	60%	40%	20%
	BDS providers	100%	5%	10%	0%
	NGOs & development partners	100%	70%	60%	70%
	Technical agencies (R&E)	100%	30%	40%	30%
macro	Local government	100%	40%	40%	30%
	Central government/Lines ministries	100%	60%	40%	30%

Annex 3: Questionnaire

PAR - BKVC

My name is Fabrice Ndayisenga, I am a consultant hired by FIOM Rwanda to collect data on Beekeeping Value Chain..

I am collecting information to help us understanding the beekeeping Value Chain in Eastern Province of Rwanda. A better archiving and understanding of the said sub sector-associated data (demographics, performance, value chain and management practices of beekeeping will positively contribute to facilitate linkages between partners/stakeholders in the Pro-Bee Project area and the relevant networks at different levels (nationally, regionally and internationally), with focused on improving production & marketing and make beekeeping value chain responsive to local and export market

Would you please be willing to spend a little time answering some questions?

We are going to discuss several questions. Please understand that there is no right or wrong answers. Please just answer the questions honestly and to the best of your ability/knowledge. If you do feel comfortable or do not know the answer to a particular question, just let me know and we will move to the next question in the survey.

The question will be discussed in groups and response provided also in groups to addresses research purpose of how the beekeeping value chain is configured in terms of products, their uses, sources, actors, activities and values.

Approach

Research needs to become part of people's everyday life in order to be meaningful to them. Participatory research with action with people helps them to think through their problems and their potentialities showing the ways they can be involved beyond the immediately obvious concerns. It uses dialogue based participatory approach to enhance local people's awareness and confidence, and to empower their action.

For reasons of brevity. The Exercises were conducted by calling a meeting in the village and asking community beekeepers to help in drawing up charts. Participants generally enjoyed the exercises and gave up valuable time to take part. Farmers were asked to draw things or represent things on the charts themselves. Wherever possible the PAR practitioner helped to demonstrate how to start only.

A. *BEEKEEPING PRODUCTION*

1. What are the involved inputs and its cost for you to produce honey and other bee-products?
2. How many available categories of honey producers in your place?
3. How do you differentiate such categories of honey producers?
4. Can you mention available institutions that support beekeepers in your area?
1. Where do you get capital to invest in honey production?
2. What does the policy/law say about beekeeping production?

B. HONEY HARVEST

1. What are the tools and equipments do you use to harvest honey? (Probe for both local and modern tools).
2. How do you keep the harvested honey?

C. TRANSPORTATION OF HARVESTED HONEY

1. How do you transport honey from (i) the site to homestead? (ii) Homestead to market place?
2. What type of transportation you are using to take honey from (i) farm-yard/wild to the homestead? (ii) to the factory for processing it ready for market selling?
3. What type of transportation you employ to take honey from the homestead/factory to the market place? How do you conserve honey you transport to market?
4. Where do you get capital to transport your honey from either homestead or farm yard to market place?

D. HONEY PROCESSING

1. How do you process your produced honey for selling?
2. Do you have proper place or building for your honey processing?
5. Provide business-details of every work participant in entire processing of honey?
6. Packaging: (i) how do you pack your honey for market selling? (ii) What type of packages do you use? – mention volume capacities?
7. Where do you get packages from?
8. Do make any branding of your product (honey)? If YES; can we see the kind of label you use?
9. What is the total cost do you incur in processing your honey?
11. What does the beekeeping policy say about honey processing?

E. BEEKEEPING MARKETS

1. Where do you sell your produced honey?
2. Price: (i) in what quantities by volume do you commonly sell your honey? (ii) At what price(s)?
3. Your honey is being sold under which of the following plans? (i) Individually or (ii) as a group/cooperative?
4. Do you have a common place for selling your honey, i.e. the Market collection point/centre?
5. Is your market covering your entire costs of production in terms of both (a) internal and (b) external markets?
6. Do you know what the beekeeping policy provides for honey market for the farmer and for the smallholder like you?
7. What do you expect the Government/other partners to do in order to improve your beekeeping situation?
8. What does the beekeeping policy or law say about honey markets?

F. THE BEEKEEPING POLICY

The beekeeping policy is either supported by, or conflicting with the following policies in various aspects. Can you cite areas of conflict than supporting?

a. Agricultural Development;
b. Livestock Development;
c. Preservation of Environment;
d. Land Development;
e. Forestry Development;
f. Tourism Development
g. etc.

Annex 4. Documents reviewed

No.	Document name	Reviewed (Y/N)	Utility (1 = not useful ; 5 = very useful)	Comments
Government Strategies and Laws				
1	Fourth Strategic Plan for the Transformation of Agriculture (PSTA4), which will guide Rwanda's agriculture and livestock sector between 2018 and 2023.	Yes	5	Key document setting up a road map for the development of the national Agriculture and animal resources sector
2	MINAGRI & RARDA (2007). National Beekeeping Strategic Plan 2007-2012. Ministry of Agriculture and Animal Resources and Rwanda Animal Resource Development Authority.	Yes	5	National strategic plan to ensure that organizations are strengthened to operate more efficiently and effectively in provision of services that will in turn benefit many beekeepers in Rwanda.
3	National beekeeping strategy 2013-2018 draft doc. Not officially approved	Yes	3	
4	Prime Minister's Order N° 04/03 of 16/01/2015 establishing the Union of beekeepers in Rwanda and determining its organization and functioning		5	Ministerial order regulating the beekeeping in Rwanda
5	Law No 25/2013 of 10/05/2013 detailing organization and functioning of Beekeeping in Rwanda.	Yes	5	Law determine the organization and functioning of the beekeeping in Rwanda
6	Code of practice for apiary management, handling and processing of bee-products, RS 153:2012)	Yes	5	Rwanda beekeeping standards
7.	National beekeeping guidelines 2009	Yes	5	These guidelines seek to address several key challenges identified within the apiculture sub-sector
8	Vision 2020	Yes	4	Production and market-oriented agriculture is recognized key pillar for the country development.
9	Economic development and	Yes	4	The increase of the productivity of agriculture

	poverty reduction strategy II			is a key priority set by the EDPRS II
10	DDP District Development Plan (2013-18) Kayonza , Gatsibo and Nyagatare	Yes	5	District Development Plan
11	NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN	Yes		Conservation of parks – Buffer zones
Scientific (published) papers/reports				
12	Beekeeping as a livelihood strategy in a changing environment *A study on the effects of forest governance change and landscape transitions on local beekeepers in Rwanda*	Yes	3	This study aims at measuring the development of these policies in forest governance and their effects on the landscape and the people of Rwanda.
13	Strengthening firm-farm relation in honey value chain, *A case of Apibusiness Development Company and the Huye District Beekeepers' Cooperative, Rwanda. 2013*	Yes	3	The paper assess the relationships between ApiBusiness Development Company (ABDC) processing and Cooperative of Beekeepers of Huye District (COPABUHU) honey producers with the purpose of developing strategies to improve the firm-farm relations for enhancing Smallholders honey producer's market access.
14	Feasibility study on the value of honey bees for sustainable livelihood and biodiversity conservation: *Case of Nyungwe landscape 2014*	Yes	3	The paper showed how beekeeping would get associated to forest conservation and livelihood improvement.
Consultancy reports				
15	Beekeeping/ Honey Value Chain Financing Study Report by SNV Rwanda 2009	Yes	4	The consultancy yielded good findings especially to assess the financial needs of current and potential beekeeping entrepreneurs which constituted the demand of financial services for all actors in

				the beekeeping sub-sector.
16	Determination of the improvements required for the production and export of quality honey from Rwanda September 2004 By ADAR Project,	Yes	3	The consultancy summarizes a rapid assessment of the current situation of the apiculture sector in Rwanda, and in particular with respect to the potential for honey export

Annex 5. Cooperatives participated in PAR and key resources persons interviewed (supportive institutions)

Name	District	Contacts
Cooperatives participated in PAR		
COPROMI	Gatsibo	Muvunyi Harouna:0783790368
ABAHUJE	Gatsibo	Mutesi Marie Olive 0786715983
ABADAHIGWA	Gatsibo	
ABANYAMURAVA	Kayonza	NduwayeZU Norbert 0782508022
COPANYAKA	Kayonza	Nzabonimpa Innocent 0788949597
COPROMA	Kayonza	Turikumana Faustin 0788440655
DUTUBURE UBUKI	Kayonza	Twizeyimana Anaclete
KATIKA	Kayonza	Independence Theophile 0782895343
TWITEZIMBERE RUGARAMA	Kayonza	
DUHUZIMBARAGA	Kayonza	
ABAHAGURUTSE	Kayonza	
Twitezimbere bavumvu Ndatwa	Kayonza	
KOBONZUGA	Nyagatare	Nduwamungu jean de Dieu:0783173745
KOZAMUKA	Nyagatare	Nsanzamahoro Paul 0783423399
KOABIMU	Nyagatare	
TWITEZIMBERE INDATWA	Nyagatare	
SACCO Kiramuruzi, SACCO RUKOMO BPR Kayonza		
Participants in BKVC & Supportive institutions		
RUTAYISIRE Gilbert	Nyagatare	Director of Agriculture, animal natural resources
NDAZIGARUYE Gervain	Nyagatare	DARO

HAKIZAKUMEZA Innocent	Kayonza	Director of BDE TEL:0782322416 Email:innocent.hakizakumeza@kayonza.gov.rw
MUDA Bututa	Kayonza	SMEs & Cooperatives Development Officer Tel:0788706634 Email:bututa.muda@kayonza.gov.rw
MUHAYIMANA Cyprien	Kayonza	Director ofAgriculture and Natural Resources TEL: 0788552099
MUTESI Jackline	Kayonza	DARO TEL: 0788305588
UWAMARIYA Vestine	Gatsibo	Director BDE 0788590881
NSIGAYEHE Ernest	Gatsibo	Director of Agriculture and Natural Resource 0788618700
UDAHEMUKA Bernard	Gatsibo	Agriculture officer 0788574403
Anselme Nzabonimpa	FERWACAPI	Former chairperson 0788523126
Ntaganda Jean de Damascene	FERWACAPI	Chairperson 07270277795 /0788455973
Dr Christine Kanyandekwe	RAB	Head of Animal Resources department 0788590435
Shema Aimable	NAEB	Livestock export 0788758226
Rukwatage Janvier	FIOM	Chairman 0788304194
Niyosaba Ephrem	FIOM	Project Coordinator Pro Bee Project 0788303702
Uwimbabazi Appoline	FIOM	Program Coordinator 0781207875
Ntirenganya Gervais	FIOM	Field officer Kayonza and Gatsibo 0788452143
Butera Appolinaire	FIOM	Field officer Nyagatare 0783037041