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# PRODUCTIVE LANDSCAPES (PROLAND)

## STRENGTHENING SMALL-SCALE BEEKEEPING IN TANZANIA



**OCTOBER 2019**

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COVER PHOTO: Traditional hive in the Uyui District, Tabora, Tanzania. Courtesy of David Miller.

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**DISCLAIMER**

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# TABLE OF CONTENTS

<b>TABLE OF CONTENTS</b> .....	<b>I</b>
<b>ACRONYMS AND ABBREVIATIONS</b> .....	<b>II</b>
<b>PREFACE</b> .....	<b>III</b>
<b>EXECUTIVE SUMMARY</b> .....	<b>IV</b>
<b>1.0 INTRODUCTION</b> .....	<b>I</b>
1.1 STUDY OBJECTIVES AND USAID CONTEXT .....	I
<b>2.0 APPROACH AND METHODOLOGY</b> .....	<b>2</b>
2.1 APPROACH .....	2
2.2 METHODOLOGY .....	2
2.2.1 First Literature Review and Field Visit .....	2
2.2.2 Second Literature Review and Field Visit .....	3
<b>3.0 VALUE CHAIN DESCRIPTION AND ANALYSIS</b> .....	<b>4</b>
3.1 VALUE CHAIN ACTORS, FUNCTIONS, AND MARKET MAP .....	4
3.1.1 Value Chain Actors .....	4
3.1.2 Value Chain Map .....	5
3.2 HONEY VALUE CHAIN ANALYSIS .....	6
3.2.1 Input Supply .....	6
3.2.2 Production .....	7
3.2.3 Collecting/Bulking .....	9
3.2.4 Transporting .....	10
3.2.5 Processing and Packaging .....	11
3.2.6 Trading/Wholesaling/Retailing .....	12
3.2.7 Exporting .....	13
3.2.8 Other Government Enabling Conditions .....	15
3.2.9 Quality/Grading .....	16
3.2.10 Gender .....	17
<b>4.0 VALUE CHAIN ANALYSIS TABLES</b> .....	<b>19</b>
4.1 RECOMMENDATIONS FOR UPGRADING THE VALUE CHAIN AT THE PRODUCER LEVEL .....	19
4.2 RECOMMENDATIONS FOR UPGRADING THE VALUE CHAIN AT THE NATIONAL LEVEL .....	23
<b>5.0 CONCLUSION</b> .....	<b>26</b>
<b>ANNEX A: REFERENCES</b> .....	<b>27</b>
<b>ANNEX B: SEVEN STRATEGIES FOR UPGRADING HONEY VALUE CHAINS</b> .....	<b>30</b>
<b>ANNEX C: ACTORS INTERVIEWED</b> .....	<b>31</b>

# ACRONYMS AND ABBREVIATIONS

BSP-KIG	Beekeeping Support Project in Kigoma Region
BTC	Belgian Technical Cooperation
BTI	Beekeeping Training Institute
EU	European Union
HMF	Hydroxymethylfurfural
MNRT	Tanzania Ministry of Natural Resources and Tourism
MT	Metric Ton
NBEFCO	Nkubhabana Bee Reserves & Food Processing Co. LTD
NGO	Nongovernmental Organization
NRM	Natural Resources Management
ProLand	Productive Landscapes
PROTECT	Promoting Tanzania's Environment, Conservation, and Tourism
REPLACE	Restoring the Environment through Prosperity, Livelihoods, and Conserving Ecosystems
SIDO	Small Industries Development Organization
TABECU	Tanzania Beekeepers Cooperative Union
TBS	Tanzania Bureau of Standards
TFDA	Tanzania Food and Drugs Authority
TFS	Tanzania Forest Service
Tsh	Tanzanian Shilling
UKI	Ushirika Kobondo Cooperative
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WCS	Wildlife Conservation Society

# PREFACE

The Productive Landscapes (ProLand) project<sup>1</sup> helps the United States Agency for International Development (USAID) to catalyze change in land management systems to help people and institutions in developing countries make informed, actionable, and effective development decisions. The goal of the project is to collect and develop tools and evidence to demonstrate that by using best management practices to sustainably intensify land use, it is possible to achieve multiple gains, such as increasing food production, reducing biodiversity loss, reducing greenhouse gas emissions (mitigating climate change), enhancing adaptation to climate variability and change, and increasing inclusive broad-based economic growth. Specific objectives are to demonstrate that multiple benefits from sustainable intensification have been achieved using best management approaches that:

1. Increase agricultural production while also increasing carbon sequestration above or below ground on farming and grazing lands.
2. Increase biodiversity by reducing deforestation rates, increasing natural forests and rangelands, providing ecologically sustainable benefits to local communities, and enhancing ecosystem services.
3. Increase resilience of rural household livelihoods to increased variability of temperature and precipitation patterns via increased rainwater capture or groundwater infiltration, diversification and integration of farm production systems, enhanced ecosystem service provision, and greater adoption of community-based natural resource management governance structures.

Specific tasks undertaken in support of these objectives include:

1. **Improving the evidence from existing successes** by documenting and disseminating existing data and success stories relevant to integrated climate change, biodiversity, food security, and natural resources management (NRM) programs for increased landscape productivity and resilience.
2. **Developing a Nature, Wealth, and Power toolbox** of methodologies and best practices for increasing landscape productivity and resilience.
3. **Preparing the future evidence base** for new success stories in productive landscapes management in programs under design in sites selected collaboratively with up to three key USAID missions.
4. **Implementing a program of work to support the uptake of community-based natural resource management best practices.**

In June 2015, USAID requested that ProLand provide technical support to the USAID/Tanzania Environment Office/NRM team on conservation enterprises and livelihoods, with a focus on small producer beekeeping. This document responds to that request by analyzing the honey and beeswax value chain in Tanzania. The research took place between June 2015-January 2016.

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<sup>1</sup> PROLAND, awarded on September 30, 2014, is a 72-month task order under the Restoring the Environment through Prosperity, Livelihoods, and Conserving Ecosystems (REPLACE) Indefinite Delivery, Indefinite Quantity contract. It is implemented by Tetra Tech in association with ACDI/VOCA. At the time this study began, ProLand was managed by the office of Land Tenure and Resource Management; it is currently managed by the Office of Global Climate Change in the Bureau of Economic Growth, Education, and the Environment.

## EXECUTIVE SUMMARY

As a growing population drives global food needs, and consumers turn increasingly to natural products for food and medicine, demand for honey is on the rise worldwide. Producers are hard-pressed to meet this growing demand when faced with extreme and variable weather (Switanek, Crailsheim, Truhetz, and Brodschneider, 2017; Flores, Gil-Lebrero, Gámiz, Rodríguez, Ortiz, and Quiles, 2019), collapsing bee populations, and declines in available forage. Increasingly, wealthy countries turn to less developed countries for honey. Ethiopia and South Africa, for example, have substantially increased exports.

Tanzania supports widespread artisanal honey production in the country's expansive miombo woodlands; the development potential of artisanal honey production in Tanzania remains uncharacterized. Encouraged by development prospects, the government and its partners have long worked to strengthen the value chain for honey production and connect local producers with export opportunities, but efforts achieved limited success. In recent years, the country's officially registered exports have been dropping.

At the same time, producer sale prices for honey have been rising in Tanzania, potentially due to a rise in unreported exports to adjacent countries. Amid this ambiguous business environment, development partners continue to invest in the industry, in part because they see it as a means to meet conservation objectives. Maintaining hives correlates positively with forest preservation, and the presence of hives can be a critical factor in improved brushfire management. Beekeeping is also one of the few potential income-generating activities near many remote protected areas.

In June 2015, USAID requested that ProLand provide recommendations to increase small-scale beekeeper incomes in USAID/Tanzania's landscape conservation initiatives and identify potential constraints facing the beekeeping sector, focused particularly on institutional and policy factors.

The ProLand analysis of the Tanzanian honey and beeswax value chain maps out the market channels from inputs to end markets. It describes the value chain actors and their functions. The study also analyzes each stage independently, outlining constraints and opportunities to increase the income of small-scale producers from beekeeping. The study then describes the most promising opportunities at producer and national levels, focusing on factors affecting the value chain's performance. Recommendations concern upgrading the honey and beeswax value chain to improve competitiveness at the national level.

Despite the challenges associated with beekeeping in Tanzania, USAID-supported landscape projects could successfully invest in activities with potential to increase incomes from small-scale beekeeping. For example, producer group institutional capacity, market information, financing, and market access could be improved. Activities would seek to increase production, refine processing, streamline transportation, and meet domestic and export market specifications. Activities would need to be adapted to the context as it evolves due to the complexity of the system and the shortcomings of available market information; data regarding bee product value chains in Tanzania is, for the most part, informal and rarely monitored and reported. Research has yet to describe the production potential of forage outside of the traditional production zones fully; estimates of current production volumes and regional exports are very rough and transportation prices vary dramatically.

The analysis assessed the opportunities and constraints to upgrading the value chain at the producer and national levels. It reviewed the potential for improved horizontal and vertical coordination and the opportunities for upgrading functions, processes, and products. The assessment also considered

potential improvements in enabling conditions and inter-chain upgrades<sup>2</sup>. Recommendations resulting from this analysis include the following:

### **BUILD PRODUCER CAPACITY**

- Strengthen producer group technical, business, and marketing capacity, as well as national training capacity, through support to the Tanzania Forest Service (TFS) and the Beekeeping Training Institute (BTI) to facilitate producer group training.
- Strengthen local collective processing capacity, especially when production volumes are high enough to make diversification into beeswax viable, by working with producer groups.
- Strengthen beehive building and sales in regions with market access and available forage, as beehive building and sales represent the main constraints to production in these places.

### **STRENGTHEN LINKAGES BETWEEN PRODUCERS AND BUYERS**

- Reduce mistrust and build confidence between producers and buyers through training and field visits. Trust-building strategies have proven successful in integrating producers into value chains.
- Identify lead firms willing to buy from and build capacity of producer groups and facilitate these arrangements.

### **IMPROVE THE BUSINESS ENABLING ENVIRONMENT**

- Support the creation of a platform to enable direct export by producer groups, or create this capacity in the Tanzania Honey Council (similar to the Tanzania Coffee Board).
- Collaborate with the TFS on the development of a national beekeeping database and traceability system.
- Characterize regional and domestic demand for the full range of bee products, from bulk unprocessed honey to niche products, and make this information widely accessible.
- Support government efforts to reduce regulation complexity and increase enforcement for honey exports to regional countries.
- Improve in-country facilities to test bee products by working with the government and private sector, and disseminate findings to the industry regarding product quality.
- Facilitate opportunities for groups and retailers/wholesaler to get together (such as fairs) to strengthen linkages between value chain actors, facilitate peer-level collaboration, and provide a venue for training.

### **INTEGRATE CROSS-CUTTING THEMES**

- Capitalize on and strengthen the engagement of women in all levels of the industry.
- Improve access to appropriate financing for market actors at all levels.

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<sup>2</sup> Tables 4.1 and 4.2 present the elements of this analysis in greater detail.



Finally, the report recommends that USAID and its implementing partners integrate beekeeping into projects independently of conservation objectives. Decisions to include beekeeping in a project should be based on a thorough assessment of the potential for value chain strengthening. Minimum criteria should include: sufficient available forage, local technical experience and expertise, and access to end markets. Absent these elements, investments are unlikely to succeed at expanding sustainable beekeeping enterprises and meeting conservation objectives.

# I.0 INTRODUCTION

## I.1 STUDY OBJECTIVES AND USAID CONTEXT

Despite an increase in beekeeping activity in Tanzania, the benefits derived are far below their potential for a variety of reasons, including a limited understanding of honey markets, quality production standards, and business opportunities. A deeper understanding of these markets could help unlock the potential benefits of beekeeping in Tanzania, including increased income for small-scale participants in the value chain (both men and women), and strengthened links between conservation and development with associated reduced incentives to participate in less sustainable natural resource practices. This document analyzes the honey and beeswax value chain in Tanzania. Its objectives are, first, to provide a set of specific and actionable recommendations for the United States Agency for International Development (USAID)/Tanzania's landscape conservation initiatives for increasing small-scale beekeeper income; and second, to identify potential institutional and policy constraints facing the beekeeping sector.

In 2015, USAID's three landscape initiatives in Tanzania, supported by cooperative agreements and led by conservation nongovernmental organizations (NGOs), were either already promoting beekeeping or planned to do so. The Wildlife Conservation Society (WCS) was working in the Greater Ruaha/Rungwa/Kitulo landscape in the Mbeya region (south Tanzania); the Jane Goodall Institute was working in the Gombe, Masitu, and Ugala landscape in the Kigoma region (west Tanzania); and The Nature Conservancy was focusing on the country's conservation tourism zone in the north. USAID had also awarded a contract to International Resources Group to implement the Promoting Tanzania's Environment, Conservation, and Tourism (PROTECT) Project, which supports all three landscapes. Within these landscapes, only a few options are available for supporting sustainable economic activities that can reduce rather than increase pressure on wildlife and their ecosystems. Hence, the strong interest in taking advantage of the apparent opportunity for beekeeping to deliver both increased economic growth and forest protection.

The document explains the approach and methodology the Productive Landscapes (ProLand) team used for the study and describes and analyzes the Tanzania honey value chain, focusing on the value chain actors and their functions, and the existing market channels for honey and beeswax. The document concludes with recommendations for increasing small-scale beekeeper income at the project level and for addressing institutional, policy, and market constraints. The last section provides the study's conclusions.

## 2.0 APPROACH AND METHODOLOGY

### 2.1 APPROACH

In line with USAID's interest in supporting small-scale producers within areas of high biodiversity or that provide important ecosystem services, the study focused on USAID/Tanzania's environment and natural resources management (NRM) projects in 2015. Specifically, the team looked at what could be done to strengthen the roles and functions of producer groups within the honey value chain, and thereby increase the economic benefits producers derive from beekeeping activities. To accomplish this, the study analyzed constraints and opportunities along the entire value chain—from production to end markets—from a producer group perspective. The study also analyzed higher-level constraints and opportunities related to markets, institutions, and policies that could be addressed by a national conservation and development project. The study did not look at medium- to large-scale producers nor the potential competitiveness and impact of other natural resource-based value chains as compared to beekeeping. The study did not evaluate the impact of beekeeping on natural resource conservation.

### 2.2 METHODOLOGY

Research consisted of a literature review and a validation and scoping visit to Tanzania focused on producer-level value chain actors, followed by synthesis and interpretation of observations and a further review of the literature and drafting of a national-level value chain analysis. The team conducted a second visit to Tanzania for interviews with non-USAID supported beekeeping initiatives, government officials, and other value chain actors such as exporters and buyers to validate the value chain analysis.

#### 2.2.1 FIRST LITERATURE REVIEW AND FIELD VISIT

Although the team found prior studies of the beekeeping and the bee product value chain in Tanzania, the studies do not constitute a solid foundation of evidence for improving program designs or identifying priority opportunities to improve beekeepers' livelihoods. Much of the evidence provided in the documents is anecdotal, the sampling is not representative of the populations of interest, and information was often not rigorously collected. Analysis reflects the limited information available on end-market demand, forage potential, production volumes, regional exports, and transportation costs; conclusions and even entire paragraphs have been reproduced from one publication to another. These documents list recommendations for each function of the beekeeping value chain that would likely be true for most agricultural or nontraditional forest product value chains. Deeper analysis with pointed recommendations for beekeeping interventions is lacking.

In the field, the team collected additional documents and data from national and regional government agencies and actors along the value chain. Although this information helped fill in some gaps and clarify or support initial conclusions, the glaring data gaps precluded the level of understanding needed to assess comprehensively and with confidence barriers and opportunities to expanded honey and beeswax production by smallholders. Annex A lists the principal documents consulted for this study.

To guide the desk study, the team analyzed seven recognized strategies for upgrading rural agricultural value chains, identifying options for using each one. The team then developed a matrix showing the options for improvements for each strategy (if there were any) and their corresponding advantages and constraints. The team then developed field research methods and questions to test the options identified. Annex B includes more information on the seven strategies.

During the first field visit, from September 22–October 1, 2015, the team traveled to the Mbeya region to visit the WCS beekeeping activities. The team also went to the Tabora Region to visit producer

groups involved in a long-term beekeeping project led by the British NGO Traidcraft and met with key government and private sector stakeholders in Dar es Salaam. The team shared the preliminary findings of this scoping visit with USAID, which provided recommendations for further research to address the mission's needs better, both specific to WCS and to other landscape initiatives supported by USAID/Tanzania, and with more focus on potential policy, regulatory, and market interventions.

### 2.2.2 SECOND LITERATURE REVIEW AND FIELD VISIT

In contrast to the first round of research, which focused on strengthening the value chain at the producer level, this analysis emphasized the full honey value chain. To guide the field research, the team carried out an initial honey and beeswax value chain analysis.

This work followed the good practices for value chain analysis described on USAID's Microlinks website. First, the team outlined the honey and beeswax value chain actors and their functions and used this information to develop a value chain map. Next, the team developed a narrative description of the main market channels and functions of the value chain, as well as the principal constraints and opportunities for each. The team then developed a draft table to analyze potential opportunities along the value chain, their foreseeable challenges, and recommendations based on eight structural and dynamic factors recognized as affecting the performance of the chain (USAID Microlinks, 2012).

The team returned to Tanzania December 8–18, 2015, to vet the findings of the value chain analysis. On this trip, the team visited the Belgian Technical Cooperation (BTC)/government-supported Beekeeping Support Project in Kigoma Region (BSP-KIG) with a member of the WCS team to learn about implementing two phases of a beekeeping project and to conduct further research into regulatory and market constraints at the local and national levels. During the visit, the team met with a range of actors working across or supporting the strengthening of the Tanzania honey value chain, including producer groups and cooperatives, district and Tanzania Forest Service (TFS) beekeepers, national government regulatory and technical division staff, traders, wholesalers, exporters, and USAID partners. Annex C lists the actors interviewed during the two visits.

After the second field visit, the team updated both the matrix (with the seven elements of the honey value chain that can be strengthened at the producer level) and the value chain analysis (including recommendations for supporting policy, regulatory, and market elements).

## 3.0 VALUE CHAIN DESCRIPTION AND ANALYSIS

### 3.1 VALUE CHAIN ACTORS, FUNCTIONS, AND MARKET MAP

The Tanzania honey and beeswax value chain is complex and informal. Multiple actors carry out many of the same value chain functions, producers are only loosely organized, regulations governing the sector are difficult to implement, and transportation infrastructure is lacking. Inputs to small-scale producers are generally subsidized by NGOs, development agencies, the government, or traders, or are purchased (or constructed) by beekeepers themselves. Almost all the production in Tanzania comes from small-scale producers, most of whom are in traditional beekeeping areas within miombo woodland ecosystems, such as those in the Tabora and Kigoma regions. (The study omits medium- to large-scale producers.) Producers sell honey and beeswax locally for beer or medicine or to producer groups, traders, processors, and exporters. Producer groups, traders, and processors then sell to retailers/wholesalers who in turn sell to retail establishments. Exporters sell to brokers or importers—both legally to overseas countries and illegally to neighboring countries.

Bee products other than honey and beeswax, such as propolis, royal jelly, pollen, and bee venom, are nearly nonexistent in local markets and no value chains have been developed for them. Stingless bee honey is also used locally as medicine, but its production requires more advanced colony development and honey preservation techniques. Although such products have international markets, the challenges they present to the existing honey and beeswax value chain (more advanced production, harvesting, and storing techniques; marketing and business skills) would need to be addressed before the value chain could be upgraded.

#### 3.1.1 VALUE CHAIN ACTORS

Eight categories of actors execute eight functions in the value chain (see Table 3.1, next page). The functions range from supplying inputs for honey production to collecting (bulking) and processing, to wholesaling and exporting. Actors include input providers and small-scale producers and their producer organizations (associations and larger cooperatives). Traders include local buyers and large export companies, some of which also engage in wholesaling. Some small urban buyers package and sell honey to supermarkets. The TFS oversees the management of bee resources in wildlife, forest, and bee reserves, as well as on public lands. Development agencies implement programs directly in collaboration with the government or through NGOs.

Small-scale producers perform the input supply, production, and simple processing functions, while beekeeping groups and cooperatives carry out the production function up to processing. Traders and wholesalers fill functions such as collecting/bulking, primary and secondary processing, and exporting. The government provides inputs such as hives or protective gear and has recently begun constructing or buying hives, producing, collecting, transporting, and processing to generate revenue through exports. NGOs and development agencies often subsidize inputs; one actor in this category also participates in transport and trade. Farmers and their cooperatives engage in a limited set of functions in the value chain. Though they perform the essential function of producing honey and beeswax, they receive limited value from the chain by being excluded from trading, retailing, and exporting. Producer groups also have little involvement in processing and packaging for retail.

**Table 3.1: Honey and Beeswax Value Chain Actors and their Functions**

FUNCTIONS	ACTORS							
	Input Supply Companies	Small-Scale Producers	Producer Groups	Cooperatives	Traders	Wholesalers	Government	NGOs/Donors
Export								
Retailing/wholesaling								
Trading								
Processing								
Transporting								
Collecting/bulking								
Production								
Input supply								

Note: Shaded cells indicate the functions (in rows) carried out by the value chain actors (in columns).

### 3.1.2 VALUE CHAIN MAP

The value chain map in Figure 3.1 (next page) shows the four principal “channels” through which honey and beeswax “flow” to reach domestic and international markets. The functions in the chain include input supply, production, collecting/bulking, transporting, processing/packaging, trading, retail/wholesaling, export, and consumption. The map also shows the value chain’s enabling conditions: government policies (regulations and strategies), aspects related to finance, and the provision of technical assistance and capacity building.

In Channel 1, individual honey producers or producer groups sell semi-processed honey directly to local consumers in villages and town markets. The market price of these products is the lowest among the four channels due to rudimentary processing and packaging and low transportation costs.

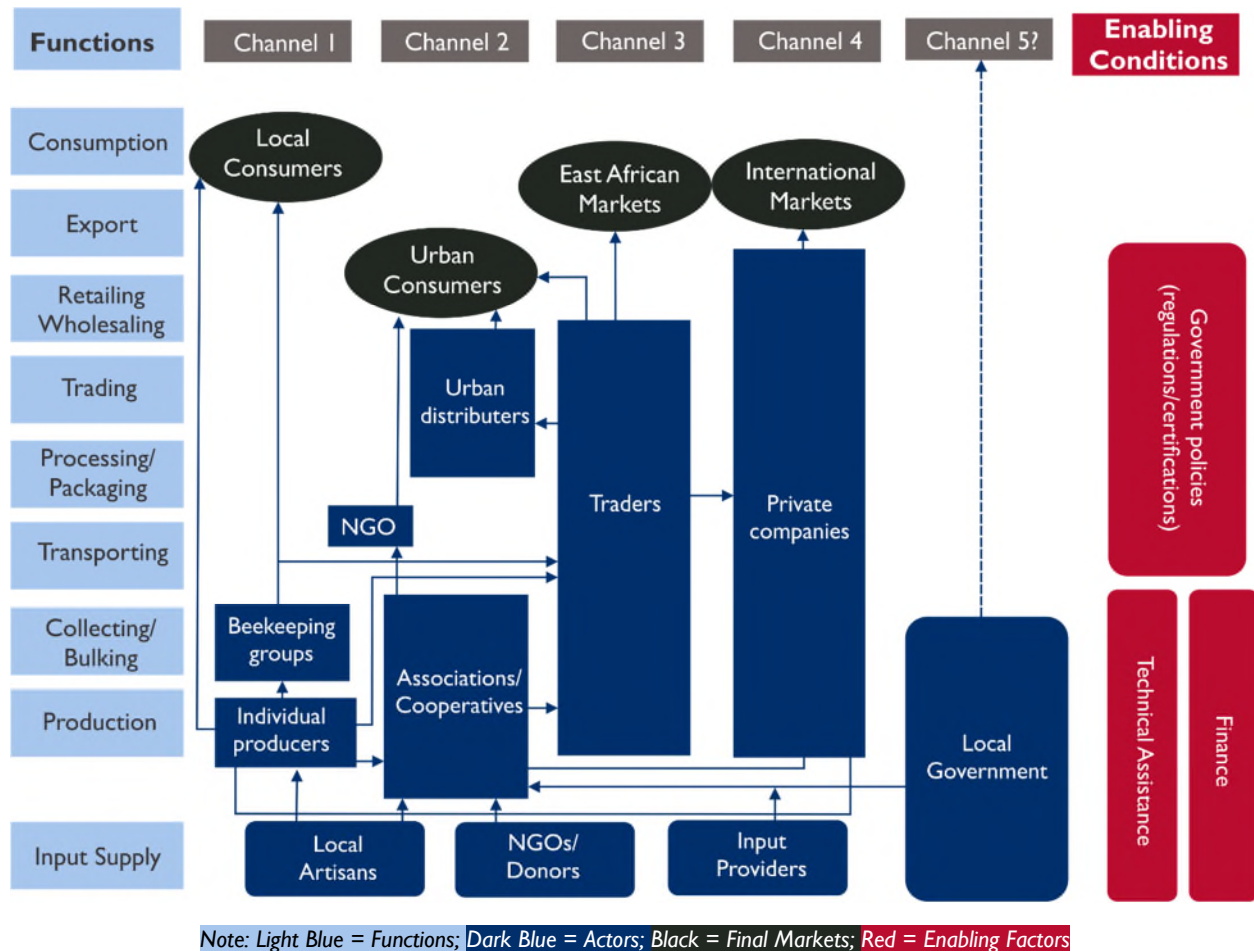
In Channel 2, individual producers or producer groups reach urban consumers who buy from supermarkets via village traders and urban distributors and, for USAID-supported groups in Mbeya, through WCS. Local traders organize the honey supply by buying honey from villages and producer groups and transporting it to urban markets for further processing and packaging, or for sale to urban distributors.

Channel 3 consists of regional international markets in surrounding countries, including Burundi, Democratic Republic of Congo, Kenya, Malawi, Rwanda, Uganda, and Zambia. Traders buy honey from villages and urban centers and transport it to other countries, typically without following relevant regulatory procedures.

Channel 4 comprises overseas international markets, primarily the European Union (EU), the United Arab Emirates, and India for honey, and Japan, the United States, and Germany for beeswax. Large companies based in Dar es Salaam are responsible for sales. These companies buy from individuals, groups, or traders and often use their own staff located in high production areas. They usually carry out further processing to improve honey or wax quality, and then sell honey and beeswax to brokers or private companies.

Channel 5 is the new TFS strategy of producing and eventually exporting its own honey.

**Figure 3.1: Honey and Beeswax Value Chain Map**



### 3.2 HONEY VALUE CHAIN ANALYSIS

This section analyzes the Tanzania honey and beeswax value chain functions and participants in more detail. Sections 3.2.1–3.2.7 describe how honey and beeswax proceed through the eight main functions in the four main channels. These sections also detail the challenges and successes of producers, and the constraints and opportunities they face. For this analysis, the trading, wholesaling, and retailing functions have been grouped together because of their similarities (Section 3.2.6). The three enabling conditions (finance, technical assistance, and government policy) are discussed where relevant throughout, but Section 3.2.8 contains additional information on enabling conditions and a discussion of constraints and opportunities. Sections 3.2.9 and 3.2.10 cover cross-cutting issues, respectively, quality and grading and gender.

#### 3.2.1 INPUT SUPPLY

The main inputs for beekeeping are hives, harvesting equipment, and protective clothing. Traditional and modern hives are used. Traditional hives are made from tree trunks, bark, or reeds. Nontraditional hives are made of wood and include both the “transitional” Tanzania Top Bar and Kenya Top Bar hives and the modern and more advanced Langstroth hive. Most technical advisors in the beekeeping sector promote the use of transitional hives to increase productivity, facilitate hive management and harvesting, and reduce the negative environmental impact of using nonrenewable bark or tree trunks. Traditional

hives are nevertheless still prevalent, in part because transitional hives are more expensive and Langstroth hives even more so. The modern Langstroth hives are also designed to retain beeswax, thus depriving producers of this product. Honey produced with those hives also requires special processing equipment.

Where transitional or modern hives have been promoted, development agencies, NGOs, the TFS, or individual district beekeeping offices have provided most of the required inputs to producers or beekeeping groups. Individual producers with the means also purchase their own hives, often from local carpenters who have been trained to construct transitional or modern hives. Private trading companies like Honey Care Africa and Honey King (a Chinese company) loaned out hives against future honey produced; however, these were unsuccessful as producers did not repay the loans.

“We initially provided 1,000 Langstroth hives to beekeepers in Tabora, but the initiative failed because some producers didn’t use the hives, while others refused to pay back loans with the honey they produced.”

— Jerry Liu, Director of Honey King

Using proper protective gear is promoted among beekeepers to provide better protection when harvesting or managing hives and to reduce the need to use smoke, which can contaminate the honey.

### **Constraints**

- The high cost of modern hives makes it difficult for farmers to transition from the traditional hive; new hives typically cost between 40,000 and 80,000 Tanzanian shillings ([Tsh] around US\$20–40).
- Producers have no financing options.

### **Opportunities**

- Local carpenters and tailors can be trained to construct modern hives and make protective gear, which would reduce costs.
- Village community banks, where they exist, could be used as a source for financing hives, though the banks may need to be strengthened.
- Beekeeping has the potential to be an environmentally sustainable natural resource activity, so donors, development organizations, and the government are willing to sponsor the purchase of hives and equipment.
- Beekeeping is an income-generating activity, so producers can be motivated to invest in hives if they believe they will get a positive return on their investment.
- When traders are convinced that producer groups can successfully and continuously provide high-quality honey and beeswax, they have been open to providing inputs to groups.

## **3.2.2 PRODUCTION**

Individuals own most production hives, but producer groups interviewed in Mbeya reported receiving subsidized hives that were managed collectively. While producers own the honey from their hives, they usually come together for post-production activities in groups, associations, or cooperatives.

Hive yield varies from 4 to 20 liters per hive, per season. The number of liters produced by a hive is influenced by fodder (the flowers available to bees), the experience and skill of the beekeeper, the beekeeper’s investment in management practices, and hive type and size. The more bars transitional hives have, the greater the possible production. Some traditional beekeeping areas in Tanzania can



produce up to 20 liters of honey per hive despite using the traditional hives. This is likely due to a combination of beekeeper experience and the fodder available in the area.<sup>3</sup>

Miombo forests have two harvesting seasons: the main season between June and August and the second between December and January. Due to differing flower species prior to each season, honey from each period is different in taste and color. Off-season bee colony management can influence production, but interviews suggest that producers in Tanzania engage little with their hives (and bee colonies) out of season.

Harvesting and processing practices both affect honey quality. These practices include harvesting before or after the optimal harvest time, not using sanitary equipment or operating under sanitary conditions, or using too much smoke to control bees during the harvest.

The TFS and district beekeeping offices employ beekeeping officers, many of them trained by the Beekeeping Training Institute (BTI) in Tabora, to provide producers with technical assistance. TFS officers support and regulate producers with hives in forest reserves or wildlife management areas. District beekeeping officers provide technical assistance to producers with hives on community forest land and village land. However, the government's operational budget severely limits the frequency of visits by these agents. As a result, visits to villages and technical assistance are almost exclusively supported by donor projects. NGOs and development agencies, such as the United Kingdom NGO Traidcraft in Tabora or WCS in Mbeya, also provide technical support to producers. Private sector actors provide minimal technical assistance to producers, but Jasmine Bee in Kigoma and Honey King in Arusha provide oversight during harvesting and processing. TFS has also begun to produce honey in its reserves, and the entity plans to export honey in the future to help cover operation costs.

Miombo woodlands cover more than two-thirds of Tanzania's 48 million hectares of forest and woodland. These traditional beekeeping areas are in the western regions of Kigoma, Rukwa, and Tabora, and the southern regions of Iringa, Lindi, Mtwara, and Ruvuma. Due to the often-remote location of beehives, Tanzanian honey has a reputation for being organic, as bees are not exposed to areas where pesticides or fertilizers are used.

It is difficult to determine how much honey and beeswax Tanzania produces, as limited national data have been collected. According to the Ministry of Natural Resources and Tourism (MNRT), average honey and beeswax production is 9,380 MT and 625 MT per year, respectively. Data from the United Nations Food and Agriculture Organization places production at closer to three times that volume. Either way, if the government estimates of the country's honey and beeswax capacity of 138,000 MT and 9,200 MT are accurate, the production of honey products is far below Tanzania's capacity.

Some districts supported by the BSP-KIG are collecting beekeeping data. These data demonstrate that the numbers of producers (both male and female), production of honey and beeswax, beehives (both traditional and transitional), beekeeping groups, and village community banks in the Kigoma region increased substantially over 2011–2015.

### **Constraints**

- Each village and region has a unique set of production challenges (forage type, bee species, and other factors), so no single solution will increase production and improve quality in Tanzania.
- Beekeeping is rarely the primary income-generating activity for producers, making it difficult for them to invest the time and commitment required to adopt better management practices.

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<sup>3</sup> The team interviewed a Tanzania Bureau of Standards (TBS) researcher in Kigoma with a mandate to analyze the effect of fodder varieties on honey production.

- Producers do not always have the facilities and equipment needed for sanitary harvesting best practices.
- There is a shortage of technical beekeeping experts to support the sector.
- The TFS and districts lack resources, particularly those to cover transportation costs and provide consistent and effective technical assistance.
- No information is available on the relationship between productivity and the types of fodder in Tanzania.
- Training materials are scarce.
- Some areas in Tanzania are not suitable for honey production.

### **Opportunities**

- Qualified technical expertise does exist in Tanzania.
- Some communities have developed, demonstrated, and adopted inexpensive and appropriate practices to reduce contamination during harvest and handling.
- Training capacity exists in-country: the BTI in Tabora provides technical courses related to beekeeping.
- Producers in Tabora and Kigoma have achieved high levels of productivity from which less-experienced producers can learn.
- Some producers have achieved high levels of productivity using traditional methods, providing a solid base for increasing volumes through collective sales.
- The Tanzania Bureau of Standards (TBS) is interested in and attempting to collect more information on various aspects of productivity, including population densities of colonies, productivity of colonies, production capacity of forests and farmlands, and market potential.
- Projects like BSP-KIG have demonstrated that they can significantly increase production.

### **3.2.3 COLLECTING/BULKING**

Traders collect honey from individual producers and bulk it for transportation to markets in secondary cities, Dar es Salaam, neighboring countries, or other international destinations. Some overseas exporters (Fida Hussein & Co. Ltd. among them) have regional offices, while others (such as Honey Care Africa) have collection points managed by staff. Some make informal agreements with producers or groups before harvest (either with or without agreeing on a buying price). Honey King works with one district to which it has loaned 500 Langstroth hives for a price agreed upon before the harvest. Local or regional traders collect honey and sell to wholesalers or retailers.

In a few cases, associations or cooperatives collect and sell honey in bulk. However, organizing cooperatives has seen limited success in Tanzania. Among the biggest challenges these groups face is obtaining and maintaining the capital to buy honey from producers and cover their operational costs. Most cooperatives collect dues from their members, but these funds usually are not sufficient to fund their operations. To address this challenge, Jasmine Bee paid producers in Kigoma for crude honey once it reached processing centers, and then paid for processing the honey. However, this was a one-time deal.

Associations and cooperatives are also challenged by their limited organizational and business skills and capacity, inability to meet the agreed supply targets, and lack of understanding about market essentials such as negotiating prices and contracts. Jasmine Bee, for example, found it difficult to convince cooperatives to sell beeswax before the cooperatives have buyers for their honey. Tanzania Beekeepers Cooperative Union (TABECU), a once-promising honey cooperative in Tabora, received technical support from Traidcraft and financial support from Honey Care Africa, but was unable to repay the loan due to pre-harvest payments made to producers before the cooperative had determined realistic honey volumes. Subsequently, Honey Care went back to using its own personnel to buy honey from local collection points. BTC has had better success organizing honey supply in Kigoma, but their groups face the same challenges. In one case, a cooperative was close to getting a loan, having identified a buyer and sufficient collateral, but the deal fell through because the groups were required to transport the honey to the buyer, but there were no contingencies in the contract for accidents or other potential issues.

Because community members and producers run cooperatives, capturing value at this level of the value chain could be a means for local producers to increase incomes. However, the challenges associated with organizing honey supply would need to be addressed.

### **Constraints**

- Cooperatives and other groups lack access to finance to purchase honey from members.
- Most groups have weak organizational and business capacity.
- Groups and cooperatives have limited understanding of how markets function.
- Most groups do not have the buyer contacts or experience to sell their honey collectively.
- Mistrust between buyers and sellers is pervasive.
- Producers do not have easy access to market price information.

### **Opportunities**

- Donor projects have supported nascent honey associations and cooperatives and are interested in collecting and bulking.

## **3.2.4 TRANSPORTING**

Transporting honey is costly and represents a large portion of the final price due to product weight and deficiencies in the transportation infrastructure. Producer groups or individual producers usually transport honey to association or cooperative collection centers. In the Mbeya region, WCS fills this role to help producers reduce transport costs. In Kigoma, the BTC project provided some groups with a mototaxi to transport honey to processing centers. Traders and export companies transport honey and beeswax to urban centers for sale or eventual export. Associations and cooperatives do not have the contacts or resources to transport honey to urban centers, thereby limiting their ability to take on additional value chain functions.

Regulations exist for charging export fees for honey products transported out of the country, but neither TFS nor districts regularly enforce these regulations. As a result, honey products exit the country to surrounding areas without being registered and without fees being paid. This could be contributing to a reported increase of regional buyers in recent years. The TFS proposed a small fee for a honey product transportation license but this is not in place yet.

## **Constraints**

- Transportation costs are high.
- Infrastructure deficiencies make transportation inefficient and can result in losses due to breakage, spills, and contamination.

## **Opportunities**

- If groups, urban buyers, and processors could access capital through a grant or other nontraditional financing mechanism, they could develop a collective business model to carry out the transport value chain function instead of using intermediaries.

### **3.2.5 PROCESSING AND PACKAGING**

The manner and location of processing may change from season to season. Even within a single season, different actors in the value chain can process honey in different ways. Processing can occur at any number of places, such as near the hive or at a collection or processing center.

Honey is considered crude when it is still in comb form. To extract honey from the comb, it must be separated from the wax. This can be accomplished by passing the honey through a sieve or net (even a mosquito net). Honey presses are used occasionally, but they are not effective at separating out the wax. WCS experimented with honey presses, but they failed to improve the quality; producers reverted to the sieve method.

Cooperatives may conduct the first straining of honey if they receive it raw (still in the comb) from members. Companies convinced some producers to sell some of their honey raw. Nkubhabana Bee Reserves & Food Processing Co. LTD (NBEFCO), processor and supplier of local high-end Golden Harvest honey, insists on buying raw honey to maintain greater control over quality. Without the advanced equipment that larger companies have to remove contaminants, NBEFCO opts to train producers to harvest in combs, and then collects and transports the combs in buckets to its processing centers in Kasulu and Panda. However, many producers from areas with an established beeswax market prefer not to sell the comb form of honey so that they can harvest the beeswax.

Most honey that is not sold by producers directly to consumers undergoes at least one additional straining prior to final sale to traders, wholesalers, or retailers. When cooperatives conduct this straining, they may add this cost to the price of the honey they sell. The Ushirika Kobondo Cooperative (UKI) in Kigoma, for example, received an order from Jasmine Bee to buy crude and negotiated an additional fee for processing. Once strained, honey is packaged in 30-kilogram buckets. Some traders provide new buckets for storing and transporting honey to prevent contamination. Once processed, honey and beeswax arrive in urban centers where traders, distributors, and private companies may process them a second or third time to assure quality before packaging, whether for export or retail. Bulk honey for international export markets is packed in 300-kilogram drums. Each export container fits between 68 and 70 drums and weighs 18–20 tons. Each drum costs about US\$100. Honey King representatives interviewed reported that it is difficult to find United States Department of Agriculture (USDA) -certified drums to export to France, but the head TFS beekeeping officer mentioned that export drums were available in Dar es Salaam.

Actors at all levels of the value chain package at least some of their honey for retail sale. The Small Industries Development Organization (SIDO, a parastatal organization) and Beekeeping Development Tanzania Ltd sell beekeeping packaging, but beekeeping groups that process and package their honey for the retail market find it difficult to obtain packaging materials due to capital, supply, or transportation challenges.

Cooperatives and other producer groups do not usually conduct an analysis of the market and costs before deciding on the form of honey to buy (raw or strained) and whether to sell in bulk or retail. As mentioned in the bulking section, groups have difficulty raising and retaining the capital required to buy honey from members. To address that challenge, UKI and Mfungenzi Beekeepers in Kigoma are experimenting with providing processing and marketing services only. The effort is in its early stages, so it is unclear whether the model will provide enough revenue to sustain the processing centers.

Honey King recently constructed a large processing center for honey produced from Langstroth hives. To increase the supply of honey produced, the company provided 1,000 hives to several groups in Tabora in exchange for honey that they would harvest in the future. The groups never paid the company back, and many people did not use the hives at all. Under a new agreement with Hanang District in Arusha, Honey King provided 500 modern hives, but they do not plan to make any new agreements. They claim that honey produced from Langstroth hives is the only way to control quality. In addition to a supply problem, Honey King has also had difficulty finding a market for the honey.

### **Constraints**

- Producers have limited knowledge of best processing practices and therefore do not use them.
- Packaging materials (both bulk and retail) are often unavailable at the producer level.
- The cost of establishing honey processing facilities exceeds the resources of most communities. It is unclear how long it would take for the sale of honey to pay off that cost.

### **Opportunities**

- To overcome the need for significant capital to buy honey, options should be explored for producer groups to provide processing and marketing services to members and others.
- Different market options are available to producer groups for selling strained (or raw) honey.

## **3.2.6 TRADING/WHOLESALING/RETAILING**

Individual producers, beekeeping groups, and cooperatives sell honey and beeswax to small and large traders and the representatives of private companies. These traders and companies subsequently sell their products to urban distributors, supermarkets, and external markets.

Many small retailers/wholesalers registered with SIDO cater to the markets in Dar es Salaam. These small businesses depend on intermediaries to facilitate the link between producers and non-local markets. Traders generally hold an advantageous position over producers with regard to pricing, and over some smaller national buyers that lack producer contacts. One small business owner interviewed, Edna Mbaga of Tropical Nature African Honey, is currently paying traders 150,000 Tsh per bucket (two-and-a-half times the current producer selling price of 60,000 Tsh). However, buyers in Dar es Salaam with and without regional staff in honey producing areas accept the arrangement because organizing supply from village groups on their own is so challenging. Although small businesses have attended SIDO trainings, there is no supply coordination between them.

Interviewees frequently mentioned the honey trade fairs facilitated by the Tanzania Honey Council as a forum for training and networking, especially linking producers to buyers. The Tanzania Honey Council, a nonprofit organization representing all the stakeholders along the honey value chain, was formed around 2007. The council's objective is to strengthen the competitiveness of the beekeeping sector, with a focus on smallholder producers.

## Constraints

- Beekeeping groups do not have access to current information on pricing and wholesalers.
- Despite its mandate to support beekeeping groups, the Tanzania Honey Council does not have enough resources to carry out its work.

## Opportunities

- Small unorganized retailers and wholesalers could collaborate when purchasing honey, which could open the door for sharing transport costs.
- Small retailers and wholesalers catering to urban markets do not have direct contact or communication with producer groups. This link could be established and strengthened.
- Trade fairs have proven useful, are known, and seem to be appreciated by most actors in the industry.

## 3.2.7 EXPORTING

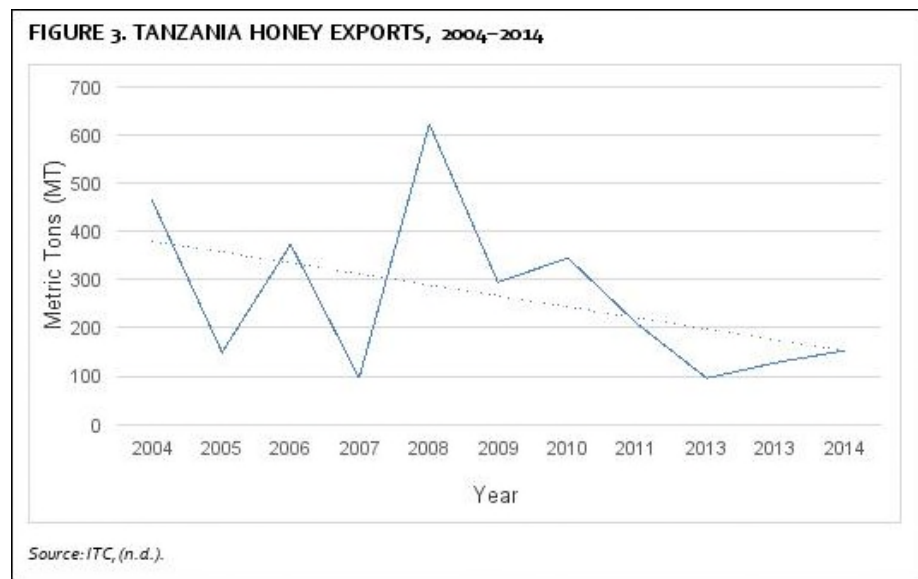
### Tanzania Exports

Honey exports from East African countries are unevenly distributed. For example, data from the TFS show that formal honey exports from Tanzania declined over 2004–2014. Over the same period of time, exports increased in neighboring Ethiopia, which exported almost no honey in 2004 but exported 859 MT in 2014.

Little information is collected and available regarding informal exports to regional countries, but a report by the International Trade Center (2014) estimates that exports could be as high as 500 MT per year. According to one of the main Tanzania exporters interviewed, illegal leakage to regional countries is one reason internal prices have increased significantly relative to external buying prices and why exports have decreased.

The main buyers of beeswax produced in Tanzania include Japan, the United States, and Germany. Beeswax export data from July 2014 to June 2015 also show one shipment to France. The four beeswax exporting companies during that period were Mohammed Enterprises, Abdulrahman Abdalah, Honey Care Africa, and Fida Hussein & Co. Ltd. Beeswax exports declined slightly over 2004–2014. However, there seems to be unmet demand for beeswax internationally—Jasmine Bee mentioned a potential

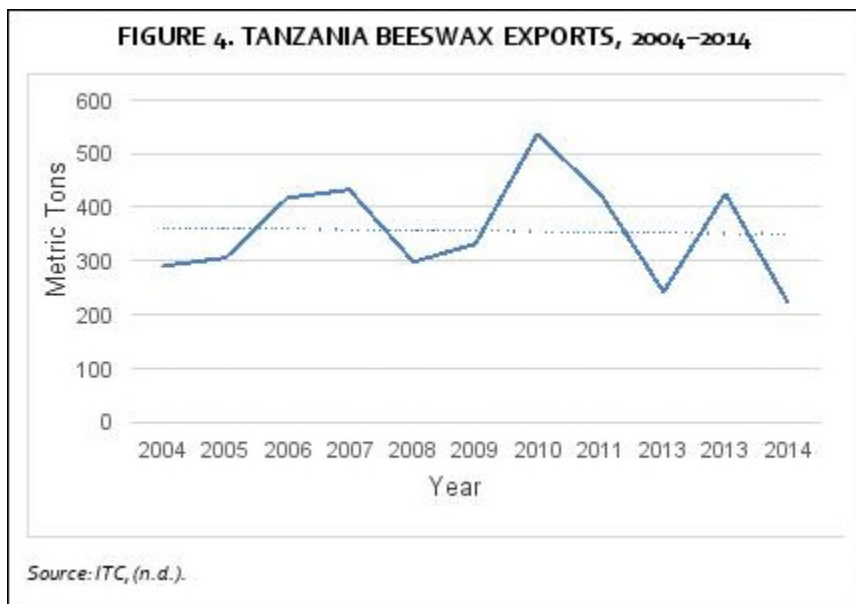
**Figure 3.2: Tanzania Honey Exports, 2004–2014**



buyer in the United States that is looking to purchase five containers (at 100 MT each) of beeswax a year. Fida Hussein is also looking for new beeswax supply.

External markets, while attractive, can be unpredictable and are affected by a variety of influences. For example, internally, demand can be affected by changes in production levels and quality due to weather extremes and diseases. The presence of pesticides or smoke can decrease international demand for Tanzanian honey products.

**Figure 3.3: Tanzania Beeswax Exports, 2004–2014**



External factors can also affect demand. According to Honey Care Africa, the EU market recently collapsed due to increased production in Argentina. Kenya imports from Tanzania also decreased in 2014 due to increased exports of higher-quality honey from South Sudan. The drop in the Kenya market seems to have affected the ability of some producer groups to maintain commercial relationships established in 2014 and to sell their honey. Internal and external prices and the exchange rate for U.S. dollars can have a big effect on profitability. Despite these challenges, honey imports from developed countries is on the rise. Between 2010 and 2014, EU honey imports from developing countries increased by 30,000 MT per year, to 178,000 MT, with the majority coming from China and smaller percentages coming from Mexico, Argentina, and Thailand.

### **Export Compliance**

Tanzania has historically met the standards and conditions required to export to EU member countries. National requirements include government submission of a chemical residue monitoring plan to the EU and sending samples to Germany for testing. To facilitate the testing process, the TBS is trying to obtain accreditation for its own testing laboratory. Companies that export to the EU and United States must meet additional food standards, have a traceability system, and cover the cost of additional testing and certification. Exporters to the EU are also required to use a Hazard Analysis and Critical Control Point approach for processing and storage facilities.

“We used to export a lot more, but because of the presence of additional Tanzania exporters and those from the surrounding countries, there is even more competition, which has driven internal prices higher.”

— Sr. Accountant, Fida Hussein & Co. Ltd.

Internally, exporters must meet and pay for export requirements such as a certificate for export, registration of bee products, and inspection fee, but the costs are minimal (approximately US\$75 in total). The Government of Tanzania is proposing increasing the fees to about double their current rates.

### **Tariffs**

Tanzania is eligible for trade benefits from a number of honey-importing countries. The African Growth and Opportunity Act qualifies Tanzania for a zero percent tariff rate for honey exports to the United States (as opposed to 1.9 cents per kilogram). The country is exempt from merchandise processing fees

and from paying duties and quotas on exports to the EU through the “Everything but Arms” arrangement.

### **Constraints**

- No system or model exists for producer groups or cooperatives to export honey or beeswax directly, including a support system for complying with national and international procedures and regulations.
- Information on internal and external demand is largely absent.

### **Opportunities**

- The developed world is increasing its imports of honey from developing countries.
- Tanzania qualifies for tariff-free honey and beeswax exports to the EU and United States.
- Several advanced Tanzanian cooperatives are processing enough honey and beeswax to interest international buyers.
- The TFS has plans to export honey and is trying to develop a business plan for doing so. In addition to providing revenue for the agency, providing access to a market for producer groups is also a goal.

## **3.2.8 OTHER GOVERNMENT ENABLING CONDITIONS**

The TFS has registration policies and regulations for beekeepers located inside forest and wildlife reserves, and for buyers transporting products from these areas, but the group’s limited financial resources make implementing these regulations a challenge. Additional regulations may require producers to pay a fee for registration. Buyers must register with TFS and pay fees (26,000 Tsh per consignment regardless of the volume transported) at the relevant district office. The funds are then deposited into a TFS account. It is not clear that this procedure is being implemented.

Limited information is collected during registration. Apart from general information about the buyer, the only information gathered is the source of the product purchased. Districts also charge buyers a fee, which varies from district to district. To avoid paying registration fees, many buyers go directly to the wildlife reserves to buy honey. As no specific inspection criteria seem to exist for registering honey products being transported, there is little quality control. To address this, the TFS plans to introduce an inspection fee for collection centers, as well as additional fees related to producing, transporting, and exporting bee products.

The inability to implement the policies, together with the lack of information about volumes, prices paid, and destinations, means that tracking the movement of honey products internally and to neighboring countries is difficult. Without this information, the government cannot make effective policy and management decisions, and producer groups cannot make sound production, marketing, or pricing decisions. The resulting informality also likely hinders formal negotiations between producer groups and regional buyers and effects internal pricing. The TFS is interested in developing a beekeeping database and traceability system and has drafted a scope of work to design and implement them, but the service has limited resources for hiring consultants.

### **Constraints**

- Resources to implement government policies and regulations are limited.
- The roles and responsibilities of districts and TFS beekeepers for the implementation of policies and regulations are unclear.



- Traders and producers are reluctant to pay regulation fees.

### **Opportunities**

- The government is serious about developing a beekeeping database and traceability system and has a small fund to support its design.
- Implementing existing government beekeeping regulations could help reduce informality in the beekeeping sector.

## **3.2.9 QUALITY/GRADING**

### **Quality**

Some exporters and government officials interviewed stated that honey quality in Tanzania has improved due to the adoption of better processing and harvesting practices. Quality depends in part on how honey will be processed and to whom it will be sold. Commercial processing can remove most contaminants. Many local consumers are willing to purchase minimally processed honey, either due to cost factors or lack of product awareness. Producers may use unclean or inappropriate methods to remove the honey from the hives and inappropriate containers for transportation. Honey quality degrades if stored too long or at temperatures that are too high. Some producers intentionally introduce water to honey to increase volume. Improper use of smokers when harvesting can also leave the smell and taste of smoke.

The TBS established a honey and bee products standard in 2006 that complies with the EU and Codex standard and applies to processing groups, cooperatives, and exporting companies. The standard evaluates honey quality by testing for properties such as ash, acidity and moisture, diastatic power, and HMF. Collection centers must comply with the TBS standard; producer groups that are unable to access finance rely on donors to establish processing facilities and compliance. The TBS is aware of the challenges to small producer groups and is willing to help them achieve compliance. Enforcement of compliance does not always occur, although one group claimed it had to pay the certification fee even though it was noncompliant. TBS does not have the resources to inspect regularly.

The Tanzania Food and Drugs Authority (TFDA) uses the same TBS standard and carries out inspections. Although the study team broached the topic with a TBS Product Testing and Standard Setting Officer, the differences in the responsibilities of the two organizations were not clear.

Little research has been carried out in Tanzania using physicochemical characteristics to evaluate honey produced for domestic and export markets. In 2014, Masoud Hadi Muruke, a student from the University of Dar es Salaam, tested 26 honey samples from 10 honey production regions of Tanzania using six physicochemical parameters: water content, sugar content, pH, ash content, Hydroxymethylfurfural (HMF), and color. The results showed that apart from stingless bee honey, most of the samples met both Tanzanian and international standards. The study concluded that darker color and higher moisture content can indicate lower honey quality resulting from inappropriate processing or storage practices or exposure to heat.

There are relatively simple techniques for testing for honey moisture content. These include pouring a drop of honey on the soil. If the honey balls up like mercury, it has not been significantly adulterated.

### **Grading**

The parameters for distinguishing table honey from industrial honey are related to whether the honey has undergone processing or treatment that alters its natural characteristics, while still complying with

the TBS chemical requirements. The government relies on the goodwill of exporters to make that determination when filling out export documents.

The EU minimum product standards for importation have no criteria for grading honey. The United States has suggested voluntary standards for grading honey based on factors of analysis (refractive indexes and the presence of soluble solids and moisture) and quality (flavor and aroma, absence of defects, and clarity). Honey complying with the standards and scoring above a 70 based on the sum of the numerical values given for levels of compliance with the factors of flavor and aroma, absence of defects, and clarity are graded A, B, or C. The TBS standard states that “honey shall not have any objectionable flavor or aroma, including smoke,” but there are no prescribed methods for testing or grading this quality.

Globally, honey color is one of the most important determinants of price in the import and wholesale market. Lighter-grade honey attracts higher prices on the international market as it is destined for direct consumption (rather than large-scale commercial use). The United States also has standards for color designation, but this factor is not considered to be related to quality. The TBS standard requires table honey color to be uniform and uses the Pfund scale for designating color.

Similarly, monofloral honey (produced from one type of flower) usually fetches a higher price than plurifloral honey (produced from several species of flower) due to its distinctive taste. Tanzania stakeholders interviewed supported the conclusion that differences in honey characteristics are based on forage types available to bees, but data to demonstrate this are limited.

### **Constraints**

- Government resources for quality testing and implementation of regulations are limited.

### **Opportunities**

- In general, honey quality is not considered a significant obstacle to accessing existing markets.
- Basic practices to reduce contamination during processing are within the means of producers and have been adopted by some.
- Relatively simple techniques can be used in the field for testing moisture content.
- Government quality standards exist and are being developed for beeswax. Several companies have obtained the standards and a few cooperatives in Kigoma also likely have obtained the standard.
- The TBS and TFDA collect information that could be used to promote Tanzania honey.

### **3.2.10 GENDER**

Men have traditionally engaged in beekeeping, most likely due to cultural factors and the remote location of beehives. Since men traditionally were hunters, they may have harvested honey from bees' nests while on hunting excursions in forest areas. Other contributing factors include the need to climb high up in trees to manage traditional hives and, until the recent adoption of more effective protective gear and harvesting techniques, the prevalence of bee stings.

Women's participation in beekeeping groups in Tanzania depends on the cultural context (a group observed in Mbeya was majority female, perhaps because women traditionally have a greater role in that community's leadership) and donor strategies (during its establishment, a group in Tabora was encouraged to have equal numbers of women and men). There are other instances of female-only groups.

In almost all the groups interviewed, women's participation in beekeeping has increased. One likely reason is the increased adoption of modern hives; as the hives are not usually in trees, women have the opportunity to be involved in production. Beekeeping does not have roles that are specifically more conducive to female participation. In some groups, women and men fill different functions; in others they fill the same functions.

### **Constraints**

- Certain cultural contexts present more barriers to increasing women's involvement in beekeeping activities.

### **Opportunities**

- Examples exist of increased women's involvement in beekeeping in Tanzania.

## 4.0 VALUE CHAIN ANALYSIS TABLES

### 4.1 RECOMMENDATIONS FOR UPGRADING THE VALUE CHAIN AT THE PRODUCER LEVEL

Table 4.1 (next page) provides recommendations for upgrading the honey and beeswax value chain at the producer level, with USAID/Tanzania’s three landscapes in mind. The literature suggests seven ways the honey value chain can be strengthened at this level: horizontal coordination, vertical coordination, functional upgrade, process upgrade, product upgrade, enabling environment upgrade, and inter-chain upgrade (Mitchell, Keane, and Coles, 2009).

Table 4.1 details options for improvements for each element and their corresponding advantages and constraints. The table describes each element (column 1), related observations (column 2), opportunities and constraints for upgrades at the producer level (columns 3 and 4, respectively), and recommendations for interventions for upgrading small-scale producer beekeeping activities in USAID/Tanzania-supported projects (column 5). Practitioners in each landscape can use this table to identify which characteristics of each element are relevant to their context. The corresponding interventions can then be tailored to needs of each project.

**Table 4.1: Recommendations for Upgrading the Value Chain at the Producer Level**

Element	Situational Analysis	Opportunities for Upgrading	Constraints to Upgrading	Recommendations
<p><b>Horizontal coordination:</b> Improving economies of scale and access to the market by improving producer organization and/or increasing numbers of producers in each group.</p>	<ul style="list-style-type: none"> <li>Groups and cooperatives are prevalent, but most are not economically sustainable.</li> </ul>	<ul style="list-style-type: none"> <li>Strengthen producer groups and cooperatives to sell collectively.</li> </ul>	<ul style="list-style-type: none"> <li>Groups have limited organizational and business skills.</li> </ul>	<ul style="list-style-type: none"> <li>Support training of select members of beekeeping groups by the BTI.</li> <li>Support the development of realistic and simple business plans.</li> <li>Hire small business/organizational strengthening staff.</li> </ul>
<p><b>Vertical coordination:</b> Increasing stability of sales through fixed relationships between producers and traders/wholesalers, for example, through contracts and out-producer systems.</p>	<ul style="list-style-type: none"> <li>Vertical linkages exist from local, NGO, export companies, and government input providers to producers; from producers to producer groups and traders; from producer groups to traders, processors, and exporters; from traders and processors to retailers/wholesalers to retail establishments; and from exporters to brokers or importers.</li> </ul>	<ul style="list-style-type: none"> <li>Better linkages between organized beekeeping groups and retailers/wholesalers and exporters could provide the opportunity to bypass intermediaries.</li> </ul>	<ul style="list-style-type: none"> <li>Production groups have limited negotiation skills and understanding of the market.</li> <li>Prior experiences with exporters have been unsuccessful, thus buyers may be reluctant to buy directly from groups.</li> </ul>	<ul style="list-style-type: none"> <li>Use project assistance services to convince buyers and groups that agreements will be kept.</li> <li>Facilitate training opportunities for beekeeping groups through institutions, projects, and other efforts.</li> <li>Carry out market studies that focus on all the end-market options for harvested honey (as opposed to simply packaged honey for urban consumers).</li> <li>Identify potential buyers and donors willing to provide support services to advanced producer groups and facilitate agreements.</li> </ul>
<p><b>Functional upgrade:</b> Adding new functions such as processing or packaging.</p>	<ul style="list-style-type: none"> <li>Many groups make decisions related to the appropriate mix of functions without clearly understanding the market for the different functions.</li> </ul>	<ul style="list-style-type: none"> <li>Aligning market opportunities with group functions may require downgrading.</li> </ul>	<ul style="list-style-type: none"> <li>Reluctance to change existing practices.</li> </ul>	<ul style="list-style-type: none"> <li>Carry out market studies that include options for functional upgrade.</li> <li>Share findings with groups to make the most appropriate decision.</li> </ul>
<p><b>Process upgrade:</b> Increasing value chain efficiency by improving production techniques.</p>	<ul style="list-style-type: none"> <li>Production levels vary and depend on the experience of producer areas, forage, hive types</li> </ul>	<ul style="list-style-type: none"> <li>Increasing hive numbers and hive productivity can result in increased production.</li> </ul>	<ul style="list-style-type: none"> <li>Producers lack access to affordable financing.</li> </ul>	<ul style="list-style-type: none"> <li>Determine best options for increasing hive numbers to meet existing and future demand (such as subsidize, establish, and/or strengthen village</li> </ul>

Element	Situational Analysis	Opportunities for Upgrading	Constraints to Upgrading	Recommendations
	and numbers, and use of management practices.		<ul style="list-style-type: none"> <li>Barriers to improved management practices for producers include time constraints, lack of knowledge, and reluctance to change.</li> </ul>	<p>community banks; buy hive materials in bulk; train additional carpenters; and establish financing from potential buyers or NGOs providing small business loans).</p> <ul style="list-style-type: none"> <li>Support improved systems for monitoring and promoting beekeeping practices by producers both during and between harvesting seasons.</li> </ul>
<p><b>Product upgrade:</b> Improving product quality to meet standards and consumer preferences.</p>	<ul style="list-style-type: none"> <li>Although quality has improved in Tanzania, many producers and groups are not using harvesting and processing best practices; others adulterate their products.</li> </ul>	<ul style="list-style-type: none"> <li>Improve the quality of project honey products and access new or specialized markets.</li> </ul>	<ul style="list-style-type: none"> <li>The capacity and resources of producers and producer groups are limited.</li> </ul>	<ul style="list-style-type: none"> <li>Strengthen training methods for increasing adoption of harvesting and processing best practices (for example, ensure a trained technician or experienced producer is present when harvesting).</li> <li>Explore options for reducing the cost of harvesting gear (for example, training tailors and subsidizing costs).</li> <li>Support the testing of honey products by the TBS or retail/export buyers, make suggestions for improvement if needed, and communicate positive results to potential buyers.</li> <li>Identify if there is a market for honey produced from project areas.</li> <li>Evaluate the need for advanced processing based on consumer preferences or market requirements.</li> </ul>
<p><b>Enabling environment upgrade:</b> Improving supports; services; and institutional, legal, and policy frameworks.</p>	<ul style="list-style-type: none"> <li>Technical and business skills of groups/cooperatives are limited.</li> <li>No financing is available to groups.</li> <li>Beekeeping can increase the involvement of women in productive activities.</li> </ul>	<ul style="list-style-type: none"> <li>Technical training opportunities exist through the BTI, TFS, and district beekeeping officers.</li> <li>Under certain conditions, some buyers would be willing to provide loans to groups</li> </ul>	<ul style="list-style-type: none"> <li>Resources for both accessing and providing technical training are limited.</li> <li>Prior experiences have been unsuccessful and thus buyers are</li> </ul>	<ul style="list-style-type: none"> <li>Facilitate training through TFS, districts, and the institute and conduct site visits to more advanced beekeeping groups.</li> <li>Explore the idea of using small grants with project technical support to provide seed capital for village banks.</li> <li>Facilitate opportunities for groups and retailers/wholesaler to meet (such as</li> </ul>

Element	Situational Analysis	Opportunities for Upgrading	Constraints to Upgrading	Recommendations
		for inputs, such as hives or buckets, and capital for purchasing honey products from group members. <ul style="list-style-type: none"> <li>• Village community banks are common.</li> </ul>	reluctant to provide loans to groups. <ul style="list-style-type: none"> <li>• The size of village banks may prohibit raising significant capital.</li> </ul>	fairs) to discuss and explore financing options. <ul style="list-style-type: none"> <li>• Develop a gender strategy for each project area and/or production group.</li> </ul>
<b>Inter-chain upgrade:</b> Adding related products of higher profitability (for example, propolis, wax, and stingless bees).	<ul style="list-style-type: none"> <li>• Beeswax exports are strong, yet not all producers are producing and selling the product.</li> <li>• Markets for other products are not viable at this point.</li> </ul>	<ul style="list-style-type: none"> <li>• Increased beeswax production would result in increased incomes.</li> </ul>	<ul style="list-style-type: none"> <li>• Individual initial processing makes beeswax collection more difficult.</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage producer groups to conduct at least the initial processing collectively if production is sufficient to warrant focusing on the beeswax market.</li> </ul>

## **4.2 RECOMMENDATIONS FOR UPGRADING THE VALUE CHAIN AT THE NATIONAL LEVEL**

Using structural and dynamic factors that affect the performance of value chains, Table 4.2 (next page) offers recommendations for strengthening the honey and beeswax value chain to support USAID/Tanzania's small-scale beekeeping initiatives. The recommendations focus on interventions that address institutional, policy, and other constraints that would support beekeeping activities at the landscape level. Five structural elements affect honey and beeswax value chain performance: end markets, business enabling environment, vertical linkages, horizontal linkages, and supporting markets. Three dynamic elements also affect performance: value chain governance, inter-firm relationships, and upgrading (USAID Microlinks, 2012). The table omits the upgrading function because Tanzania has no firms with the incentive and resources for strengthening the competitiveness of the honey and beeswax value chain. Although Jasmine Bee could fill this role, the firm lacks the resources to be a catalyst at the national level.

Table 4.2 details each element (column 1), key observations that can be addressed at the national level (column 2), opportunities and constraints for upgrading (columns 3 and 4, respectively), and recommendations for interventions that could strengthen the competitiveness of the beekeeping sector to benefit small-scale beekeepers (column 5). While not all the recommendations would have an immediate benefit to small-scale producers, they help pave the way for increasing their income over time.



**Table 4.2: Recommendations for Upgrading the Value Chain at the National Level**

Element	Situational Analysis	Opportunities for Upgrading	Constraints to Upgrading	Recommendations
<b>Structural Elements of the Value Chain</b>				
<b>End markets</b>	<ul style="list-style-type: none"> <li>Consumers of honey products are local, regional, international, and urban.</li> </ul>	<ul style="list-style-type: none"> <li>There is potential for tapping into the greater regional market.</li> <li>Honey imports to developing countries are increasing.</li> <li>Beeswax exports are increasing.</li> <li>A significant urban market exists, but groups have limited contact with retailers.</li> </ul>	<ul style="list-style-type: none"> <li>The lack of information is related to regional external demand and its effect on internal pricing.</li> <li>Capacity and reliable sources to meet international demand are limited.</li> <li>Most groups have neither the buyer contacts nor negotiation skills to sell their honey collectively.</li> </ul>	<ul style="list-style-type: none"> <li>Support the development of the government's beekeeping database consultancy.</li> <li>Support a market study that focuses on regional demand.</li> <li>Provide business training and market analysis support to help groups better determine the most appropriate market for their existing capacity.</li> <li>Provide business skills training; support activities that link producers and buyers, such as field visits or trade fair events.</li> </ul>
<b>Business enabling environment</b>	<ul style="list-style-type: none"> <li>The lack of regulation of regional exports prevents developing formalized relationships with regional exporters.</li> <li>No system is currently in place to support overseas exports by producer groups.</li> </ul>	<ul style="list-style-type: none"> <li>Beekeeping regulations exist but are not implemented.</li> <li>The experience of the national coffee board assisting farmers to export provides an opportunity to learn and potentially replicate.</li> </ul>	<ul style="list-style-type: none"> <li>District and TFS beekeeping officers have limited capacity and resources.</li> <li>Funds to support the Tanzania Honey Council are limited.</li> </ul>	<ul style="list-style-type: none"> <li>Support the design and implementation of a pilot governance model that improves the regulation of honey exports to regional countries.</li> <li>Support the development of a system/structure to permit direct export by producer groups, potentially through the Tanzania Honey Council (similar to the role of the national coffee board).</li> </ul>
<b>Vertical linkages</b>	<ul style="list-style-type: none"> <li>Vertical linkages exist from local, NGO, export companies, and government input providers to producers; from producers to producer groups and traders; from producer groups to traders, processors, and exporters; from traders and processors to retailers/wholesalers to retail establishments; and from exporters to brokers or importers.</li> </ul>	<ul style="list-style-type: none"> <li>Better linkages between organized beekeeping groups and retailers/wholesalers and exporters could provide an opportunity to bypass intermediaries.</li> </ul>	<ul style="list-style-type: none"> <li>Groups do not have easy access to market price information.</li> <li>Production groups have limited negotiation skills and understanding of the market.</li> <li>Previous attempts have been unsuccessful, so buyers may be reluctant to work with groups.</li> </ul>	<ul style="list-style-type: none"> <li>Analyze options for the dissemination of market price information, including using the proposed government beekeeping database and traceability system.</li> <li>Use donor technical assistance services to convince buyers and groups that agreements on both sides will be kept.</li> <li>Facilitate training opportunities for beekeeping groups through the BTI, projects, and by other means.</li> <li>Identify potential buyers and donors willing to provide support services to advanced producer groups and facilitate agreements.</li> </ul>

Element	Situational Analysis	Opportunities for Upgrading	Constraints to Upgrading	Recommendations
<b>Horizontal linkages</b>	<ul style="list-style-type: none"> <li>Groups and cooperatives are prevalent, but most are not economically sustainable.</li> </ul>	<ul style="list-style-type: none"> <li>Strengthen producer groups and cooperatives to sell collectively.</li> </ul>	<ul style="list-style-type: none"> <li>Producer groups have limited business and institutional capacity.</li> </ul>	<ul style="list-style-type: none"> <li>Facilitate training opportunities for beekeeping groups through the BTI.</li> <li>Support the development of realistic and simple business plans.</li> </ul>
<b>Supporting markets</b>	<ul style="list-style-type: none"> <li>The technical and business skills of groups and cooperatives are limited.</li> <li>Traditional methods of financing are unavailable to groups.</li> </ul>	<ul style="list-style-type: none"> <li>Technical training institutions exist through the BTI, TFS, and district beekeeping officers.</li> <li>Some buyers may be willing to provide small loans to organized groups for production and bulking.</li> <li>Village community banks are common.</li> </ul>	<ul style="list-style-type: none"> <li>Resources are limited for accessing the BTI and supporting logistics for TFS and district beekeeping officers.</li> <li>As previous attempts have been unsuccessful, buyers are reluctant to work with groups.</li> <li>The size of village banks may prohibit raising significant capital.</li> </ul>	<ul style="list-style-type: none"> <li>Facilitate training opportunities for beekeeping groups through TFS, districts, and the institute.</li> <li>Explore the idea of using donor or other funds to guarantee loans or provide seed capital for village banks.</li> <li>Facilitate opportunities for groups and retailers/wholesalers to get together (such as fairs) to discuss and explore financing options.</li> </ul>
<b>Dynamic Elements of the Value Chain</b>				
<b>Value chain governance</b>	<ul style="list-style-type: none"> <li>Government beekeeping regulations exist; apart from those governing overseas exports, they are scarcely implemented. No information exists to inform decision making or provide the opportunity for developing formalized relationships with buyers.</li> </ul>	<ul style="list-style-type: none"> <li>Existing regulations, if fully enforced, can be used to improve monitoring and regulating of informal trading.</li> </ul>	<ul style="list-style-type: none"> <li>Capacity and resources to implement government regulations are limited.</li> </ul>	<ul style="list-style-type: none"> <li>Support the design and implementation of a pilot governance model that improves the regulation of honey exports to regional countries.</li> </ul>
<b>Inter-firm relationships</b>	<ul style="list-style-type: none"> <li>A history of failed collaborative arrangements between traders and producer groups has created an environment with few substantial or long-term interactions.</li> </ul>	<ul style="list-style-type: none"> <li>Jasmine Bee continues to pursue more substantive relationships with producer groups in the Kigoma region.</li> </ul>	<ul style="list-style-type: none"> <li>As a young company, Jasmine Bee has limited cash and requires bridge loans to pay producers.</li> </ul>	<ul style="list-style-type: none"> <li>Support existing and new commercial relationships with socially and environmentally minded traders.</li> </ul>

## 5.0 CONCLUSION

This study provides USAID/Tanzania with recommendations to help strengthen the honey and beeswax value chain in its landscape conservation projects. In doing so, it aims to increase incomes for small-scale participants while also strengthening the link between conservation and development and reducing incentives to participate in less sustainable natural resource practices.

Despite the challenges of beekeeping in Tanzania, USAID-supported landscape projects could invest in several priority areas that would increase income from small-scale beekeeping. Most of these priorities relate to strengthening the value chain functions that producers and producer groups currently fill: production, collecting/bulking, and processing. Landscape initiatives can focus on increasing production, strengthening producer group institutional capacity, supporting the identification of appropriate markets, supporting the creation of financing mechanisms, and creating and supporting market linkages. Production can be increased by improving management practices and augmenting numbers of hives and producers in each group. Producer groups can be strengthened by improving their organizational and business skills and through helping them to develop realistic business plans. Groups can better align honey products—crude or processed, packaged in bulk or bottles—with more focused analysis of local, regional, national, and international market opportunities. Efforts and resources can be invested in exploring options for raising capital for groups by analyzing the use of village community banks, subsidizing purchases through project funds, or facilitating loans from market actors or NGOs. With better understanding of existing and potential markets, landscape partners can help facilitate improved business conditions for producers by identifying and linking producer groups with buyers and supporting commercial agreements.

The second set of recommendations addresses institutional, policy, and other constraints in the beekeeping sector that require national intervention. Priority should be given to actions that would support the areas mentioned above and most directly benefit USAID landscape beekeeping initiatives. The most promising action is creating and supporting market linkages. One way to do this would be to support national and regional agricultural fairs, which could deliver short term-benefits to USAID-supported landscapes. The fairs could serve as a medium for improving linkages between producers and buyers, and for providing groups with training related to the key challenges identified in this document.

Some recommendations address the need for additional information related to beekeeping, such as end-market demand, forage potential, production volumes, regional exports, and transportation costs. However, further research is needed to support more informed decisions and to prioritize actions better in these areas.

This study focused on strengthening USAID-supported initiatives that have already committed to investing in beekeeping. For future USAID-supported initiatives looking to invest in sustainable economic activities, the team recommends that USAID partners carry out a value chain selection process at the landscape or district level before deciding to invest in beekeeping. As suggested on USAID's Microlinks website ([www.microlinks.org](http://www.microlinks.org)), this analysis would focus on the potential competitiveness and impact of the various natural resource value chains, as well as cross-cutting themes such as gender and conservation value. Such an analysis should include rapid assessments of the challenges identified in this document related to markets, production, organizational capacity, and financing. Additionally, this analysis should allow USAID partners to compare the costs and benefits of each of the options to ensure they pursue the activity with the highest potential return on investment, in terms of both economic and environmental sustainability.

## ANNEX A: REFERENCES

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## ANNEX B: SEVEN STRATEGIES FOR UPGRADING HONEY VALUE CHAINS

1. **Horizontal coordination:** Improve economies of scale and access to the market by improving producer organization, increasing numbers of producers in each group, or both.
2. **Vertical coordination:** Increase sales stability through fixed relationships between producers and traders and wholesalers, for example, through contracts and out-producer systems.
3. **Functional upgrade:** Add new functions to producers or cooperatives, such as processing or packaging.
4. **Process upgrade:** Increase value chain efficiency by improving production techniques.
5. **Product upgrade:** Improve product quality to meet standards and consumer preference.
6. **Enabling environment upgrade:** Improve support; services; and institutional, legal, and policy frameworks.
7. **Inter-chain upgrade:** Add related products of higher profitability (such as propolis, wax, and stingless bees).

## ANNEX C: ACTORS INTERVIEWED

Table C.1: Interviews September 23–October 1, 2015

Region	Location	Name	Sex	Position
Mbeya	Unyamwaga Village	Jackob Andrea	M	Group Chair
		Aliko M. Kisemba	M	Group Member
		Raphael A Lyendile	M	Group Member
		Suha Said	M	Group Member
		Charles M Mwangole	M	Group Member
		Riziki Charles	M	Group Member
		Huruma Jackson	F	Group Member
		Fatuma Mwalingo	F	Group Member
		Teresia Simon	F	Group Member
		Shali Juma	F	Group Member
		Flora Manfred	F	Group Member
		Joyce William	F	Group Member
		Mwalingo Adam	M	Group Member
		Antoni Talyani	M	Group Member
		Halamiti Simon	M	Group Member
		Peter Modest	M	Group Member
		Peter Saimon	M	Group Member
		Flora Mwamlasi	F	Group Member
		Daud Ntoyo	M	Group Member
		Zakayo Raphael	M	Group Member
	Ilolo Village	Daniel Mwantuka	M	Group Chair
		Christopher Anyelwise	M	Treasurer
		Fredy Njumao	M	Group Member
		Paul Mwasomola	M	Group Member
		Michael Boaz	M	Group Member
		Enike Salwengele	F	Asst. Chair
		Charles Amwatosi	M	Group Member
		Grace Lwolo	F	Group Member
		Saguti Faines	F	Group Member
		Atupele Kapinga	F	Group Member
		Zebbron Mwakateba	M	Group Member
		Luti Sisyunwe	F	Group Member
		Mussa Mwendabwila	M	Group Member
		Amani Mtafya	M	Group Member
	Hilda Mpagatwa	F	Group Member	
	WCS Staff	Noah E. Mpunga	M	Project Director
Sophy J. Machaga		F	Asst. Director	
Faraja Dembe		F	Asst. Liaison Officer	
Vicky Felix Mbofu		F	Ecologist	
Antony Minaza		M	Ass. Education Coordinator	
Honey Buyer	Ndio Supermart	F	Honey Buyer–Mbeya	
Rungwe Nature Reserve	Mr. Innocent	M	Project Manager	
Tanzania Forest Service	Mr. Denis Kwaslema	M	Regional Beekeeping Officer (TFS)	
Tabora	Izugawima Village	Richard Mushi	M	Group Chair



Region	Location	Name	Sex	Position
		Mihambo Ramadhani	M	Secretary
		Janet J. Massawe	F	Treasure
		Hassan Ngelo	M	Asst. Secretary
		Rehema Mussa	F	Asst. Chairperson
		Hassan Matenyange	M	Group Member
		Tausi Selemani	F	Group Member
		Hawa Hamis	F	Group Member
		Michael Joseph	M	Group Member
		Mary Katangwa	F	Group Member
		Mwajuma Bakari	F	Group Member
		Elizabeth Shija	F	Group Member
		Kurwa Said	M	Sub-Village Chairperson
	Sikonge District Council	Gervas Magashi	M	District Land and Natural Resource Officer
		Sarafina Nicola	F	District Beekeeping Officer (TFS)
	Kaloleni Village	George Mlimanazi	M	Ward Extension officer
		Boaz Luckas Nkije	M	Ward Executive Officer
	Igunavapina Beekeepers Group	Lea Mundeme	F	Secretary
		Modest Daniel	M	Group Member
		Damson J. Malembeka	M	Group Member
		Mashaka Idd Kimwaga	M	Group Member
George Kagusa		M	Group Member	
Baltolomeo Ndege Ulaya		M	Group Chair	
Moris Masanyia		M	Group Member	
Julius Method		M	Group Member	
Dar es Salaam	Ministry of Natural Resources & Tourism	Mrs. Mwanahamis Mapolu	F	Beekeeping Officer & Export Certification Officer
	Tanzania Honey Council	Mr. Sostenes Sambua	M	Vice Chair
	Honey Care Africa (Tanzania) Ltd	Jayen Chandarana	M	Honey Buyer
	Tropical Native African Honey	Edna Mbagu	F	Honey Buyer
	C.G. Honey	Christopher Gikanka	M	Honey Buyer

**Table C.2: Interviews December 2015**

Region	Office/Organization/ Company	Name	Sex	Position	Contact
Kigoma	Beekeeping Support Project in Kigoma Region (BSP-KIG) under BTC	Nicodemus Mpemba	M	Project Technical Advisor	nicodemus.mpemba@btcctb.org
	Natural Resources Management for Local Economic Development – Kigoma, supported by BTC	Isabella Von Ortizen	F	International Project Technical Advisor	isabell.vonoertzen@btcctb.org
	Kigoma/Uvinza District	Juma Mkondo	M	District Beekeeping Officer	mkondouvz@yahoo.com

Region	Office/Organization/ Company	Name	Sex	Position	Contact
	Kasulu Beekeepers Cooperative Society (KBCS)	Joseph Halala	M	Coops Secretary	mzingauwaka@gmail.com
	Kasulu District	Godfrey Mahendeka	M	District Beekeeping Officer	mahendeka56@gmail.com
	NBEF Co. Ltd–Honey Processing & Marketing	Stafor E.M. Nkubhagana	M	Managing Director	nbefco@yahoo.com, nkubhagana@yahoo.com
	Kibondo District	Seif Salum	M	District Beekeeping Officer	seifania@gmail.com
	TFS Kibondo	Anold Mbwambo	M	District Forest Officer	
	Kasulu Beekeepers Cooperative Society (UKI)	Zacharia Mbumba	M	Chairperson	
		Christopher Ibrahim	M	Ass. Chairperson	
		Evelada Makesi	F	Member	
		Jackson Faida	M	Member	
		Spesioza Lilagendanwa	F	Member	
		Agnes Barabara	F	Member	
		Ayubu Kamwaga	M	Secretary	
		Gladys Fanuel	F	Member	
	Mfungezi Beekeeper's Group	Juma S. Kalunde	M	Chairperson	
		Juma Mlondakamwi	M	Asst. Chairperson	
		Seif Kabobo	M	Secretary	
		Christina William	F	Member	
		Tabu Sadick	F	Member	
		Jalala John	M	Member	
		Zena Habili	F	Treasure	
	The Jane Goodall Institute –Tanzania	Emmanuel R. Mtiti	M	Programme Director– Gombe– Masito Ugalla	emtiti@janegoodall.or.tz
		Mary Mavanza	F	Dep. Programme Director	mmavanza@janegoodall.or.tz
		Aristides Kashule	M		
		Phorbe Samwel	F		
	QP Group Tanzania– Manufacture of Modern	Alex Chetkovich	M	Managing Director	alex.chetkovich@qpgroup.net.au

Region	Office/Organization/ Company	Name	Sex	Position	Contact
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