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Apiculture value chain vision and strategy for Ethiopia

Ministry of Agriculture
International Livestock Research Institute

February 2013
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Preface

In 2012, the Ministry of Agriculture commissioned ILRI to develop several background papers to inform the development of a livestock master plan and roadmap for Ethiopia. The papers were developed by teams of people brought together for this task.

The production of the background papers was supported by the Improving the Productivity and Market Success of Ethiopian farmers project (IPMS) funded by the Canadian International Development Agency (CIDA). The eight papers are listed below and are all available at https://cgspace.cgiar.org/handle/10568/51565.

- Animal health strategy and vision for Ethiopia.
- Animal production vision and strategy for Ethiopia.
- Apiculture value chain vision and strategy for Ethiopia.
- Dairy value chain vision and strategy for Ethiopia.
- Livestock extension vision and strategy for Ethiopia.
- Hides, skins and leather value chain vision and strategy for Ethiopia.
- Live animals and meat value chain vision and strategy for Ethiopia.
- Review of past policies and strategies for livestock in Ethiopia.
Establishing Ethiopia’s competitive advantage in honey and beeswax production to develop a substantial export trade is an important goal of the Growth and Transformation Plan (MoFED 2010). Increasing productivity and incomes in the very large and small-scale commercial apiculture sector is part of the long term vision.

Ethiopia has comparative advantage for beekeeping or apiculture. There are over 7000 melliferous plant species in Ethiopia serving as forage for bees (i.e. suitable for honey production). Due to bimodal rains, honey can be harvested at least twice a year. With five wild bee species identified, it is estimated that more than 2 million bee colonies exist in the forests and crevices in the country. In addition, some special stingless bees produce medicinal honey in the forest and farmland periphery (MoARD 2006).

The apiculture sector in Ethiopia, however, is far from realizing its potential for earning foreign exchange, as well as generating income for smallholder beekeepers and other actors in the value chain. Less than 10% of the honey and wax potential have been tapped, and the commercialization of other high value bee products such as pollen, propolis and bee venom is non-existent.

Addressing these issues through a private sector driven value chain approach has, for the first time in the country’s history, resulted in the successful submission of residue monitoring plans and residue testing, which has allowed Ethiopia to acquire EU Third Country Listing in 2008, a precondition for exporting to the EU (Visser 2012).

Significant changes have taken place in the last few years in the sector, although poor extension services, in particular in beekeeping management, and inadequate attention to apiculture by research institutions and absence of coordination between research, extension and farmers are exhibited on the ground.
Current situation

End market analysis
Out of the total honey produced, roughly 70% is utilized to brew ‘Tej’ (honey wine), with the balance being sold either as table honey or in other forms like semiprocessed and Birz (unfermented Tej). For a long time, Ethiopian beekeepers targeted the ‘Tej’ market only, and little or no effort was made to separate the honey from the beeswax. The recent growth in production and export of the Ethiopian honey and beeswax has contributed to the economic growth of the nation.

The bee and honey in the world offers a wide spectrum of high value products that has demand in the marketplace. Although most Ethiopian beekeepers have sticky hives with adequate propolis (bee glue), very little is harvested. Propolis, royal jelly, pollen, bee venom and bee broad production and export are untapped products.

Ethiopia has a strong domestic honey market. The 810 tonnes of honey in the current export plan for 2012 is only about 1.5% of the estimated 53.7 thousand tonnes/year currently produced (MoARD 2012). The rest of the honey produced is consumed locally and the local market is growing both for table honey and honey wine (Tej). Illegal cross boundary trade also has a reasonable share of the honey estimated to be available for the local market.

The international honey trade is a commodity market, and prices are set and followed by a small number of buyers/importers. In 2011, over 400 tonnes of honey was exported to the international commodity market. This caused domestic prices to range near or higher than honey prices on the international commodity market. This was considered to be enormous leap forward compared with 2008 when only 33 tonnes were exported (Visser 2012).

Meanwhile, the amount of table honey produced and exported, which fetches higher prices, is gradually increasing. Though still very low, the increment is due to the expansion of modern hives and private sector involvement in setting up industrial honey processing, resulting in obtaining good quality table honey that meets export requirements.

Policy
The Government of Ethiopia has established a conducive policy environment for the apiculture sector under the agriculture Growth and Transformation Plan (GTP) (MoFED 2010), among which proclamation 660/2009 provides for Apiculture Resources Development and Protection, Draft Regulation of Apiculture Resources Development and Protection, establishment of a new Apiculture Research Division at a national level, direct involvement of honey exporting enterprises in the current Residue Monitoring Plan (RMP) and establishment of the Animal and Plant Health Regulatory Directorate are the major policies.
Marketing

Beekeepers, honey and beeswax collectors, retailers, Tej brewers, processors and exporters are identified to be the key actors in the value chain of the honey subsector. Three principal channels were identified in the value chain of the subsector. These are Tej brewery channel, honey processing and exporting channel and beeswax channel. These channels are complex and interconnected that implies absence of organized marketing channel and lack of formal linkages among the actors. Most of the harvested honey goes through Tej brewery channel. Beekeepers directly sell their honey to local honey collectors (dealer or cooperatives) at district or zonal levels, which directly deliver the honey to Tej brewery houses in their localities and/or transport it to the big honey dealers (verandah) for breweries in Addis Ababa. Some beekeepers who are producing large quantities of honey also directly supply it to Tej houses in their areas. Although economically not so significant, Tej is informally exported through country visitors and transitory.

Ethiopian producers and packers have an excellent opportunity to break further away from the commodity business to produce and export honey products that are not tied to commodity honey prices. These include:

- **Coffee berry honey:** Coffee is already strongly identified with Ethiopia and honey from coffee floral sources could well be developed as an export quality product. Beekeepers on the big island of Hawaii, for example, produce a mono-floral coffee honey which sells in Japan for more than ten times the price of regular Hawaiian Lehua honey or poly-floral honey. Ethiopian coffee honey could be developed into an export-ready commodity for the Japanese honey market, and one company in particular, Kato Behoen (Sakura Brand), has studied the development of coffee honey in the past.

- **Value added fruit products:** One of the fastest growing categories in the honey business is flavoured honeys. This item would be an excellent export extension product for the creamy Tigray honey in the north of Ethiopia. Another possibility would be to integrate coffee berry pulp into honey to provide flavour and antioxidants and a special honey branding image. The sweetness of the honey buffers the bitterness of the coffee berries. Experiments in Central and South America with coffee berry mixed honey have been most desirable and promising. Other tropical fruits including mango and others can be blended into honey.

- **Sector associations are important in market linkages both locally and internationally.** Ethiopian Apiculture Board (EAB) is a national apex body dedicated to promoting the apiculture sector in the country and creation of market access for Ethiopian product. It is a private/public partnership organization with the Patronage of the Minster of Agriculture. Furthermore, Honey and Beeswax Producers and Exporters Association (EHBPEA) is established with the aim of establishing uniform quality control through the honey and beeswax industry while Ethiopian Beekeepers Association (EBA) is involved in creating exchange experiences, among members, encouraging beekeeping research improving the quality, safely and quantity of bee products and in the promotion of marking.

Production and technology

Other than areas with extreme climatic conditions, beekeeping is common in most villages and in virtually all smallholder farms in Ethiopia. The sector is characterized by a large number of smallholder farmers with low average yield per hive. It is estimated that approximately 1.4 million farm households are keeping bees for income generation using traditional beehives. Moreover, a significant number of people are engaged in honey and beeswax collection, trading and Tej making (honey wine), thereby making the industry very important in job and livelihood creation. Forest beekeeping also plays a significant role in the protection of the environment (MoARD 2007).

Total honey production in 2010/11 was estimated at 53 thousand tonnes. In addition there is an annual beeswax (honey comb) production of 3800 t. Ethiopia has the potential to produce up to 500 thousand tonnes of honey and 50 thousand tonnes of beeswax per year (CSA 2010/11). Attaining such production quantities, however, will require several successful interventions at all levels by identifying constraints in the value chain and acting on the bottlenecks.
The private sector is also recognizing opportunities in apiculture subsector. At present approximately nine honey processors operate in the country. Some of these processors are also engaged in honey production to ensure consistent raw material supply both in quantity and quality. Given the existing potential and efforts the number of private sectors which involved in honey production, processing and export can easily be doubled. The availability of niche market to Ethiopian organic and fair trade certified honey will be a driving force to encourage the private sector and smallholder cooperatives.

There are three different hive types by which honey is produced: traditional, transitional (intermediate) and frame. Traditional hives are used in 97% of bee colonies on average, and they have an average production of 7 kg of honey per colony per year, but there are significant regional differences. About 56% of traditional hives are found in Oromia region which contributes 40% towards national traditional hive honey production. Likewise, the Amhara, Tigray and SNNP regions have 19% of the traditional hives and contribute 27% of national honey production. The SNNP region, meanwhile, has 15% of the traditional hives and contributes 16% of the honey production (GDS 2009).

By placing increasing attention on the promotion of modern technologies in the apiculture subsector, the policy environment together with an evolving institutional framework are creating opportunities for promotion and development of the honey and beeswax value chains.

Input supply and services

Supply of inputs/accessories especially bee forage, colony bee wax, protective clothing, and beekeeping accessories are at a rudimentary stage. Well-built hives, frames, foundation combs, centrifuges and other hive management equipment are generally expensive and not widely available. For beekeepers in the central and northern parts of the country, it is becoming more difficult to procure bee colonies due to credit constraints.

Lack of credit availability prevents farmers from buying high yielding beekeeping equipment and undertaking modern colony management. Prices have gone up from 800 ETB to more than 1000 ETB per colony over the last few years and are increasingly becoming unaffordable to smallholders.

Extension

Review of previous assessments reveals that there are inadequate extension services and training materials and guidelines for beekeepers, processors and traders, and lack of appropriate demonstration sites and extension packages. Apiculture extension services are not well organized and they lack a strategic approach and coordination. With limited staff, even more limited budget and poor facilities, it is difficult to make an impact.

Research

The Government of Ethiopia has supported research on beekeeping technologies since 1996 at Holeta Bee Research Centre of Oromia Regional State. An important body of basic research has been completed, principally at Holeta, covering bee biology, bee botany, bee health, apiary management and bee products. Some of the technical aspects, such as the differences between Ethiopian and European breeds of Apis mellifera and the most important melliferous plant species are now well understood. Traditional beekeeping systems and the indigenous knowledge they embody have been described. Ways to adapt top-bar and moveable-frame methods to Ethiopian circumstances have been investigated. Apart from Holeta, regional livestock research centres at Sekota, Pawe, Andassa, Sinana, Adami Tulu, Yabello, Bako, Bonga, Jinka, Mekele and Srinka have started work on beekeeping. However, there is acute shortage of trained manpower and facilities.
The slow uptake of modern beekeeping methods moreover, indicates that so far research has contributed less to real innovation in beekeeping; innovation in the sense of turning knowledge into improved productivity and incomes. Future research must be focused on developing technical packages which can be rapidly taken up by Ethiopian beekeepers. In most cases, this will mean adapting productivity and quality improving modern technologies to the constraints that beekeepers face.
Vision and targets

Vision

To become a major supplier in domestic and international markets of honey, beeswax and other high value hive products by achieving growth in honey production from the present level of approximately 50 thousand tonnes to 200 thousand tonnes and beeswax production from 3000 tonnes to 12 thousand tonnes by end of 2025.

Consequently, by 2025 honey exports will reach approximately 2400 tonnes from the existing approximately 400 tonnes. Beeswax export will also grow to 1000 tonnes, while doubling production and exporting of all high value hive products. By 2025, the current estimated 1.4 million smallholder beekeepers will be doubled, while average production per hive will increase from the existing 10 kg/hive to 40 kg/hive. Average net income from traditional, transitional and frame hives will rise from about ETB 1350/hive to ETB 5400/hive.

To realize the vision and the strategy the bottlenecks need to be overcome through the strategic interventions listed below. The desired outcomes can be achieved by concerted and integrated efforts of the range of stakeholders in the value chain.

Targets to 2025

• Increase honey production from the present level of approximately 50 thousand tonnes to 200 thousand tonnes and beeswax production from 3800 t to 12 thousand tonnes by end of 2025.

• Increase honey export from the existing approximately 400 t to 2400 t by end of 2025.

• Increase beeswax export from the existing approximately 400 t to 1000 t by end of 2025 while doubling production and exporting of all high value hive products.

• Increase export revenues of honey from the current estimated USD 1.5 million to USD 8 million and beeswax from the current estimated USD 1.4 million to USD 5 million by the end of 2025.

The main underlying assumptions taken under this target are that Ethiopia increase honey production by adopting improved production techniques, improve harvest and management, strengthen research and extension, timely supply of inputs, supporting farmers to access finance and overcoming negative effects of climate change.

The increment in honey production is assumed to cover the growing local demands due to population growth and betterment of life of citizens due to economic growth. The export revenue from both honey and beeswax is assumed to raise by more than double considering the niche markets to be identified through market linkages by acquiring unique selling points like certifications and development of special labels.
Challenges and strategies

Challenge 1: Dependence on technologies of low productivity, resulting from undeveloped research

- **Strategic intervention**

  - Breaking dependence on technology with low productivity. Research by apiculture research stations both at national and regional levels for the development and diversification of high bee hive productivity (beeswax, comb etc.).

  - Promotion of technologies such as transitional beehives and modern beehives by apiculture research stations, sector associations, NGOs and private investors and adoption by smallholders and private sector.

  - Training of farmers in improved technologies and production by MoARD extension service, research stations, sector associations and private sector.

Challenge 2: Poor pre- and post-harvest management

- **Strategic interventions**

  - Enhancing honey collection centres, processing and packaging equipment suitable for marketing to international standards by cooperatives, NGOs and private sector through demonstrations, financing and related supports.

  - Strengthening sector associations like Ethiopian Apiculture Board, Regional Apiculture Boards, Ethiopian Beekeepers Association, Ethiopian Honey and Beeswax Exporters Association, and honey producer cooperatives through training, business development, developing and implementing a certification program, increasing availability of finance, developing and boosting processing capacities. NGOs, MoARD, associations and private sector can play pivotal roles to this end.
Challenge: 3 Limited number of industrial honey processors

- Strategic interventions

- Private sector investors and cooperatives strengthened through promoting market linkages, developing internal control systems, staff training to meet market requirements, increasing access to finance, modern processing methods. MFI, government and private banks are instrumental to realize the strategy.

- Improve traditional ‘Tej’ Honey brewing practices to industrial processing level for domestic and international markets. This can be realized by the private sector while cooperatives can also play important roles.

- Business to business development support like creation of out-grower schemes, training on beekeeping and the construction of transitional beehives, quality improvements, leadership, processing, marketing. Sector associations, private sector and the NGOs are important partners to implement the strategy through facilitation of the process.

Challenge 4: Inadequate capacity building and extension service, limited knowledge of modern apicultural development

- Strategic interventions

- Development and coordination of apiculture extension services. The existing apiculture value chain coordination group (CG) should be re-enforced, practical training manuals should be developed in local languages and simplified version. NGOs, sector associations, MoARD and the private sector are important partners to realize the strategy.

- Promoting youth and women in apiculture subsector. Promotion of the already launched Small and Micro Enterprise Development (MSE) strategy and supporting youth and women in business development in apiculture subsector through training, business plan development, financing, market linkages and establishment of associations. MoARD, NGOs, sector associations, MSE are instrumental to realize the strategy.

- Service provider development, i.e. building the capacity of local consultants to render consultancy services. Training of graduates, facilitation of experience sharing, facilitation generation of business ideas, financing projects. Private sector, NGOs, MoARD, universities are important partners to realize the strategy.

- Regulate and monitor application of pesticides and herbicides by authorities under the MoARD according to Registration and Control of Pesticides, repealing decree no. 20/190.

Challenge 5: Lack of access to inputs

- Strategic interventions

- Establishment of a start-up capital fund for small holders and cooperatives. NGOs, private sector, MFI are key partners to establish the fund following business plans.

- Increase bee forage resources through research and development. Research stations, private sector, cooperatives are key stakeholders to realize the strategy through coordination of efforts.
Challenge 6: Inadequate access to finance by smallholder farmers, small and medium size private businesses

- Strategic intervention

  - Value chain financing—Providing adequate and timely credit to bring about development of sustainable smallholder apiculture businesses. Rural micro finance is instrumental, as it avails credit based on business plans of smallholders, cooperatives and private investors. Government and private banks, MFI, private sector and NGOs are important partners to realize the strategy.

Challenge 7: Lack of market information for both honey and beeswax

- Strategic interventions

  - Developing an apiculture market price information system. MoARD/Ethiopian Commodity Exchange (ECX) are important partners to develop the system following local and international market prices.

  - Typifying the characteristics of Ethiopian honey, including a geo-referenced production map showing floral resources and honey production. Honey varieties should be described according to colour scale, as well as descriptive flavour profiles to introduce Ethiopian honey to the niche markets. MoARD and NGOs are important partners to realize the strategy by involving international consultancy firms having experience in the area.

  - Acquiring market intelligence for exporting. Certifications (HACCP, fair trade, ISO, organic, and GMP) are important to catch niche markets by the MoARD by recognizing and implementing certification agencies standards.

Challenge 8: Negative impact of climate change (habitat destruction)

- Strategic intervention

  - Development of more robust and resilient farming systems that is able to adapt to a range of possible climate change. Research for the apiculture subsector needs to cover this topic. Current development activities initiated by MoARD towards mitigating the constraint are vital. Strengthening research stations both at national and regional levels are priorities.

  - Enact policies to prevent decline of forest reserves due to logging, deforestation and cultivation, resulting in scarcity of bee colonies by Environmental Protection Authority following the Environmental Policy of the nation.
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