

Ministry of Agriculture & Forestry Bees for Development

Beekeeper's Survey Report

July 2008

Measures: -

- One beer bottle 500 millilitres capacity takes about 1 kg of liquid honey.
- One jerry can of 20 litres capacity takes about 27-30 kg honey; average 28kg.
- A bucket of well graded comb honey weights about 24-28kg an average of 25 kg
- One feddan is 60 x 70 meters.
- One cylindrical traditional hive (depending on the size, length, the available vegetation and the year) gives from 10-30 kg of comb honey; an average of 15 kg.

BOGORI BEEKEEPERS SURVEY

County: Mvolo

Payam: Bogori

Boma: Bogori

Personal Information:

Fifteen (15) beekeepers were interviewed whose age range from 18 to 64 years. One of the 15 persons interviewed was a lady honey hunter of 18 years often going for hunting with her brothers. She narrates that she is able to harvest feral bee nests during the day and only populous nests are harvested during the night.

The number of dependents per house hold, (HH) ranges from 2 – 25 persons with an average of 9 persons. Owing to a tribal fight in 2006 for cattle raiding by the neighboring pastoralist tribe, the people of Bogori lost all cattle and most goats where they got displaced for some time. For this reason out of the fifteen persons, only four own some goats, nine own chickens and eleven own bicycles where others have two while one has three bicycles. One beekeeper has bought a motorbike out of honey sales proceeds.

Among the main crops being cultivated more than a feddan (1–2 by few farmers) are: - groundnuts, cassava, sorghum and sesame and to some extent maize and cowpeas. Base on items being sold to earn cash, most farmers are also engaged in fishing and wild animals hunting for meat.

Section A. About Livelihood:

The different ways of earning cash in this community is by sales of: - Cassava, honey, sesame, fish, bush meat, sorghum, chickens and goats. Others buy and sell onions, biscuits, salt and sugar at small scales. In ranking these by requesting each individual to mention the first two most important, honey was dominating followed by cassava plus fish, sorghum, and bush meat. In general, apart from the above mentioned lady honey hunter, most beekeepers do harvest wild bee nests during the dry season before turning to their locally made hives at the known honey harvesting seasons.

Women at most assist their husbands in the following activities: - transporting empty hives from where they are constructed to hanging sites and honey home, honey extraction by boiling (as being done formerly or hand pressing/draining through mosquito net wire mess presently) and combs grading, honey storage and selling of honey allotted for meeting some HH financial needs.

Most of the extracted or comb honey (as is at times requested by other buyers) are sold for cash, exchanged with other items, consumed by the family or in occasions like marriages with small quantities given out to friends. In general 50 – 75% is sold and 5 – 25% is consumed depending on the various demands (market availability, occasions that required money, social occasions etc). The percentages of cash earned from honey sales ranges from 50 – 75% per year dependant on honey yields, availability of cash money in the market and the other needs for honey in the family. Among the 15 persons only one of them is working as a teacher and the other engaged in some business activity.

The use of money from honey sales depends on the plans of the breadwinner or head of the family and the demand at hand. Otherwise the following uses are given: - for marriages, buying bicycle(s)/Motorbike, buying livestock, beginning small business, paying school fees, buying medicines and clothes and other HH requirements.

Section B: About Beekeeping Practices:

The number of hives own by beekeepers varies from 15 – 200 while hives colonization varies from 5 – 150. The total number of hives of the 15 beekeepers is 1360 giving an average of 91 hives per person (giving an average production figure 20,475 kg for the Boma) and hive occupation rate of 71%. Apart from few Kenya top bar hives provided by Norwegian Peoples Aid (NPA) for a demonstration apiary, all locally made hives are from a number of tree barks species. Common trees whose barks are being removed for hives include “kovo” *Abzalia spp.*, “Mbonibia” *Terminiaia spp.* etc. Thus, all hives are cylindrical being closed at both ends leaving some holes at one side for bees’ movements. Most beekeepers report that February – March, June and September are the months that bees are most active; and they note that it is in the morning and afternoon that bees are most active.

These hives are hang high up between suitable trees branches that permit comfortable space for beekeepers to sit on during honey harvests. Desired trees are those that do not easily break and those that are relatively easy to climb; but not by the honey badger. Trees that break easily and those harboring or frequented by various groups of ants are often avoided.

During harvesting, all producers report leaving some honey especially combs containing brood and un ripped honey plus pollen pellets. Often they do not open or harvest from the side through which forages leave and come into the hives. They believe the queen bee lives there; so should not be disturbed. All beekeepers interviewed narrate that as long as some honey and brood combs are left for the bees, the colonies shall survive and would remain in same hives until they get spoiled or are vandalized by thieves or other animals like the honey badger.

Section C: About Beekeeping for Income Generation

In Bogori, honey harvesting is carried out three times in a year: February-April (major), June (lesser amounts) and September-October season is next to the major harvest. Generally hives not harvested in the main harvesting season are inspected for honey in June. The minor harvest of September/October yields honey of relatively high humidity. However owing to thick grass and bush growth, most hives in distant places in the forest are not easily accessible at the September/October honey harvests.

In 2005, twelve beekeepers reported having harvested from 5 to 25 jerry canes of pressed honey (these did not include the quantities eaten) where the 12 persons gave a total of 157 jerry canes which 4396 kg (average 13 jerry canes or 364 kg) per person. In 2006 and 2007, 8 and 12 producers reported having from 1 to 40 jerry canes and 2 to 35 jerry canes respectively; totaling 94 or 2632 kg (aver. 12 or 336 kg) and 127 or 3556 kg (aver. 11 or 308 kg). Fewer people reported some harvest in 2006 due to not being able to harvest their hives for being displaced by the tribal fight while many others have had their hives

destroyed by the raiders. The producer who has harvested 20, 40 and 35 jerry canes in 2005, 2006 and 2007 respectively is the one with the highest number of hives 200 with 150 of them colonized.

Much of the honey was sold in the local market at the boma or bought by local traders within the boma or from the county market at Mvolo. Other beekeepers with bicycles transported their honey for sale at Mvolo market which is located at the junction of the main road from Juba/Yei to Rumbek and Yiol. Here travelers and lorry drivers from Kenya or Uganda plus traders buy a lot of honey. As mentioned earlier, much honey sold here is the liquid one; having been extracted by boiling on fire or hand pressed at most. The price of liquid honey ranges from 2–4 Sudanese pounds (Spds) per 500 litre beer bottle (taking about one kg) to 3-5 Spds depending on the season and method of extraction at Bogori and Mvolo respectively. A bucket of comb honey is reported at 50 Spds, or 3–5 Spds per kilogram. Producers are now able to offer graded comb honey once required following their training.

As for now there is no sale of beeswax which is not being extracted due to lack of market and extraction skills. There are nevertheless few producers able to process beeswax after receiving the training. In general, the residue after honey extraction is simply rinsed in water and is discarded as waste. From their bee hives beekeepers harvest propolis which they use for sealing holes or cracks in containers like pots and jerry canes.

Section D: About Groups or Association Formation

Most beekeepers interviewed except two are members of a recently formed group, organized by NPA called KOFO or LINGO BATAGI. While most members are not clear of the objectives of the group, they generally believe coming together enables them to learn from one other, sell honey in bulk and be able to fix uniform price.

They feel that their gains shall be in receiving more money if their honey is bought in large quantities and possible acquisition of loans through the group.

INFORMANTS INFORMATION ABOUT BEEKEEPING AND HONEY MARKETING:

Only six informants were interviewed: one honey traders, one beekeeper/trader, two market traders and two development workers. Their answers to the questions are summed up as below: -

- Honey market is better than that of other agriculture products for the fact that it brings much money per a given quantity, honey is food, use in local brews, serves in certain medicinal purposes, although it is seasonal its prices are good. When properly extracted it can be stored for long with out getting spoil and honey traders can come right to the villages to buy it once there is demand some where. On the other hand farm products especially grains are often easily destroyed by post harvest pests such as weevils, during harvests every body in the villages and around the county market centers have same farm produces rendering prices to be very low, most are also bulky to transport to the markets yet for low prices. Fruits are the only farm produce that sell well but no farmers reported having them at Bogori. Traders for their part find it cumbersome to buy and transport farm products to sell in their shops.
- Most honey is sold in liquid forms measured in different containers: beer and plastic bottles, oil containers of 5, 8 or 20 litres capacities. However when required some producers are able to sell comb honey especially to those customers that intend to eat natural comb honey or those wishing to process for packaging. Depending on the season traders say honey price at Mvolo market is from 3-6 Spds per bottle and 100-120 Spds per jerry cane.
- Problems face by producers include un reliable market, traders that buy to sell press for the lowest price, lack of appropriate containers for honey transporting, selling and storage; long distances to apiary sites (being far into the forests) and better selling markets, inappropriate storing containers like the ordinary un coated drums, lack of proper honey processing skills and handling in general (such as extraction of honey through boiling). Honey producers do not treat beekeeping as business with a lot being consume at home. There is the problem of the honey badger which destroys many bee hives.
- Most players in the honey market are: the beekeepers them selves, individuals or travelers, local beer brewers, local traders and those coming from outside the boma and NGOs that promote beekeeping and honey market.
- As mentioned above, honey is sold in liquid form having being extracted by boiling on fire, hand press or drain by gravity through sieves/perforated containers. Comb honey is also offered by producers once ordered.
- The main demand for honey in Bogori is at Mvolo county market, local brewers both at Bogori and Mvolo, NPA that managed to buy 500 kg of comb honey this year, Rumbek and Yirol state markets and some traders in Juba.
- Honey is generally traded in Bogori and Mvolo within the payam/county; but some use to be taken to Rumbek and Yirol by some producers and local traders particularly before the 2006 incident.
- The beekeepers have ever since been taking beekeeping for honey production to eat and solving social issues. It is considered prestigious to have many bee hives in order to be able to have honey available in the family when ever needed. However honey used to and even now exchange for some farm products or domestic animals and with coming of the money market, honey is gradually being understood as source of income.
- The trend in general is that should there be any increase for honey demand, producers would increase production through construction of more hives while

those with many hives would harvest more honey especially if appropriate storage containers are available. An increase in demand would also make middle men traders to push harder on producers to harvest more honey.

- Many informants see shortages during the off season. On the other hand some say they can not determine any considerable shortages in the absence of reliable market demands. Lack of honey collection centres and storage containers might create artificial shortages since producers are force to store their honey at home in whatever containers they can get.
- The complain regarding the market is its un reliabilities, long distances to selling places and low prices especially during the harvesting seasons.
- Most beekeepers have just been encourage to form groups or associations in the last two to three years. They come together to learn more about beekeeping and be able to sell large honey quantities together and be provided some beekeeping equipments.
- Only few producers are seen to have the ability to take their honey for sale in markets outside their payma or counties.
- An increase in production could be done through making more hives, availability of reliable markets and proper containers for transporting and storage of both liquid and comb honey. Producers should be taught proper ways of handling and processing honey.

BEEKEEPERS MEETING AT BOGORI (June 2nd. 2008)

Activity I

Sources of Income:

Twenty six persons turn up at the meeting venue, where the participants were requested to name their sources of income which included the following: - Honey, bush/wild live

meat, fish, sorghum, cassava, chickens, sesame, groundnuts, cowpeas, goats, finger millet, local brews, shear nut oil, thatching grass, building bricks, tree poles, ropes, okra and tomatoes (the last two being mentioned by women participants).

On ranking the above, 22 participants (out of the registered 26 persons) had to mention five most important sources of income, the following results were got:

1. Honey with 89 scores.
2. Sorghum with 53 scores.
3. Sesame with 49 scores.
4. Cassava and Fish each with 31 scores.

Activity II

Bee Products and Uses:

Honey	Beeswax	Propolis	Pollen or bee bread	Brood	Venom
<ul style="list-style-type: none"> - For cash - Food - Sweetener - For local brews - Medicinal for fire burns, diarrhea as syrup mixed with common salt, meningitis by smearing whole body of patient with honey 	<ul style="list-style-type: none"> - Cash - Candle - Sealing holes in containers. 	<ul style="list-style-type: none"> - Sealing hole in containers 	<ul style="list-style-type: none"> - Eaten with honey as food - Eaten to relieve stomach pain 	<ul style="list-style-type: none"> - Eaten with honey to avoid one get too thirsty - Use in preparation of yeast for local brew - Eaten by men to improve libido 	<ul style="list-style-type: none"> - Producers feel stings relief body aches despite the pain during harvest

Ranking: -

Done according to number of products uses. They however look forward to having beeswax and perhaps propolis gaining prominence as cash earner if market could be made available.

1. Honey
2. Brood
3. Pollen

Activity III

Different Markets for Honey:

1. Individuals within the boma or travelers.
2. Traders within the boma, payam and county.
3. Local beer brewers.
4. NGOs (NPA).
5. Traders in other major town like Rumbek, Yirol and Juba.

Considering the above markets, producers speak of the NPA as being most reliable because it can buy large quantities at a time to enable them get money for meeting financial demands. With much money from large sales, projects like buying of bicycles, motorbike and of other business items to sell in the village market is possible.

However for meeting immediate HH needs and in the absence of NGO, the local brewers are the reliable markets able to buy at any time in quantities ranging from bottles to jerry canes. The local traders at most come second to the brewers although they press to buy at the lowest price during the harvesting seasons.

Activity IV

Production Assessment

By the end of the discussions, all participants were asked to stand up; then those who sold two jerry canes (150 Spds) and above were asked to remain standing. 12 persons were up.

Those who sold three jerry canes – 11 persons were up.

Those that sold four jerry canes – 8 persons were up.

Those that sold five jerry canes – 8 persons were up.

Those that sold six jerry canes – 6 persons were up.

Those that sold seven jerry canes – 4 persons were up.

Those that sold eight jerry canes – 4 persons were up.

Those that sold nine jerry canes – no body remain standing.

The reasons of under production or selling very few jerry canes were given as: -

- Much honey is being eaten at home and in occasions like marriages.
- There were no other market opportunities other than that at the boma with little ability of buying much honey during the honey season when almost every family has honey.
- The county market at Mvolo is far and needs at least a bicycle for one to ferry jerry canes of honey to sell.
- Destruction of many hives by the people that attacked and raided cattle and goats.
- Lack of training for better hives management and proper honey handling for marketing.

Producers comment that having been enlightened and market being available, they shall try their level best to produce more honey to sell. Those who sold more also said that they look forward to increasing production through making more hives, harvest most hives as possible and improve on the group work to enable them sell more honey.

KARIKA BEEKEEPERS SURVEY

County: Mundri West

Payam: Kotobi

Boma: Karika

Personal Information:

Fifteen beekeepers were interviewed with their ages ranging from 20-60 years. The number of dependents range from 1 to 20 persons with an average of 9 persons per HH. Five producers own cattle in addition to goats and chickens, eight own goats and chickens, and thirteen own chickens. Thirteen beekeepers own bicycles which is the main means of transport in which other families possess two. Only two of these producers own each a motorbike.

The main crops being grown are groundnuts, cassava, maize, sorghum, sugar canes and oranges. Other producers use oxen for cultivation and in general larger pieces of land is under cultivation compared to those seen in Bogori.

Section A: About Livelihood.

The main sources of income as listed by most producers are groundnuts, maize, honey, goats, cassava, cattle (for major financial demand), chickens, oranges and sugarcane. In mentioning the best two sources of income, honey has the highest frequency followed by groundnuts, cassava, maize and orange. Most people interviewed only depend on their hives for honey production and few are engaged in honey hunting during the dry season. The roles played by women in beekeeping among the producers include: - cutting of grass that is tied round hives made of bamboos splits, transport new hives to hanging sites and harvested honey home, tie harvesting container and smoking bundle to a rope to be pulled up the tree for use by the men, empty honey combs into container under the tree, honey extraction, responsible to store honey, sell some honey for HH needs and brew some honey into local beer to sell or for social occasions. Women also help in cleaning grasses or other debris in the honey combs and grading.

Producers report that they sell between 60-80% of the honey harvests; the rest being eaten or used in family functions, it is also eaten during communal cultivation. The money being received from sales of honey depends on the quantities harvested, and other social demands for honey and ready market that could take much quantities of the available honey. Generally producers put total income from honey at 50-75% per year. Among the 15 persons interviewed, one person is a teacher.

Depending on the producers and the demand, money received from honey sales is mostly spent on marriages, cultivation or hiring labour, buying of bicycles and motorbikes, for buying cattle or goats, starting small business, construction of small shops at Karika trading centre, paying school fees, buying medicines and other HH items. Other producers reported that they use the money for buying seeds or orange seedlings. The beekeepers however say that the amount of money received from honey sales depends on total amount harvested, available market at production site (boma market), presence of a bicycle for taking honey to the next market at Kotobi or Mundri, ability of individual

producers to take honey to Juba. It is worth mentioning that two or three of the persons interviewed reported transporting some of their honey to Juba.

Section B: About Beekeeping Practices.

The number of hives own by 15 beekeepers range from 11-75; giving a total of 696 with an average of 46 hives per beekeeper; and an average production figure of 10,350 kg for the Boma. The rate of hives colonization is from 11-75 per beekeeper giving an average of 95.5% in the boma. This high rate of hives occupation indicates high bee population in the region. The county has many mountain ranges with rock crevices some of which are in accessible to honey hunters; hence issuing many swarms annually. Again it is belief here that there is a certain family that has some control over the bees. Thus any community in Mundri that feels that their hives are not being colonized or are producing less; honey and some money (these days but not previously) is collected from beekeepers and taken to the king of bees in that legendary family. On presenting these gifts and problems to the king of bees, and after consultation with the ancestors, the king would give some leaves of “Abulayok” *Grevia mole* to the client to take and tie around one of the trees where the hives of the community are being hung. After such performance, there would be plenty of bee colonies to colonize hives and much honey to harvest. I have heard reports of beekeepers from Maridi and Tore having gone with gifts to that king of bees to bring bee colonies to their locations. The majority of locally made hives are from bamboos splits, sorghum stalks some creeping plants and very few from tree barks. These give the beekeepers in Karika a wide range of hives making materials. One beekeeper has ten Kenya top bar hives provided by Oxfam for establishment of a demonstration apiary. The bees are reported to be most active during the months of February - March, May – June and September. These are apparently the months or weeks just before honey harvests commence. At most beekeepers after all do not go for any hives inspection at any time other than those months in which they expect honey harvesting or going for early grass burning to avoid hives being burn by the frequent forest fires when all grasses and bushes are very dry. While the period when most hives’ occupation takes place is April- June and November – December; the producers reported.

The suitable trees for hanging hives are those that have branches for easy placement of hives as well as offering better sitting sites during honey harvests. Among the trees not good for hives hanging are those that break easily, those that harbor ants and those with stems very difficult to climb. Other beekeepers choose trees whose flowers are heavily visited by foragers. “Ardeb”, “Abusudur” etc. However there is one tree “Banga” in which no body is supposed to place any hive in. Several beekeepers say that if they find a hive in such tree, the hives are immediately pushed down without question; because it is considered a taboo.

Producers are well aware of the need to leave some honey especially the un ripped honey and brood combs and those combs that contain pollen grains. They however speak of harvesting few brood combs to eat in the forest when particularly there is little water supply. Most hives in this community are slightly narrow to either side with an opening in the middle which can be close and open through which honey combs are removed. So often honey combs from the opposite side of the entrances are remove, leaving combs to

the other side. Most producers know that when all honey and brood combs are removed, the colonies won't survive.

Section C: About Beekeeping for Income Generation

Three honey harvesting seasons are also reported at Karika; March-April being the main honey season, September-October follows and June for lesser honey harvests. Most persons interviewed can hardly remember how much honey they harvested in 2005 except two people who said they got 3 and 4 jerry canes each. However in 2006, 10 persons reported harvests ranging from 3-30 jerry canes totaling to 101 jerry canes (2,828 kg) with an average of 10 jerry canes (280 kg). In 2007, 15 persons reported harvests ranging from 3- 25 jerry canes totaling to 160 jerry canes (4480 kg) with an average of 10.7 jerry canes (299.6 kg).

Such harvests are mainly sold in Karika the boma market, Kotobi the payam main market and Mundri the main market in the county. However, apart from purchases by travelers and traders, some honey producers transported their honey and sold in Juba. These are beekeepers who view beekeeping or honey as a business commodity. Generally honey is sold in liquid form after being extracted through boiling or hand pressed/draining through mosquito wire mess. They reported having sold comb honey once to somebody who came through Oxfam. The price per bottle is from 2-3 Spds of boiled honey in Karika and 3-5 Spds of pressed honey at Kotobi or Mundri. A jerry cane of honey was sold at 75-100 Spds at Karika, 80-115 Spds at Kotobi and up to 120 Spds at Juba. The producers are willing to sell comb honey if there is any market.

Owing to lack of market and processing skills, no beekeeper has sold any beeswax while propolis is harvested for sealing containers that are leaking.

Section D: About Groups or Associations Formation

Two groups have been formed at Karika. One is called Manjiroko Beekeepers Association which was encouraged by Oxfam UK and the other is Garombele Farmers Association. The latter combines both farm and bee products where Action Africa Help (AAH) has built for them a store. Members of this group seem to be more business minded and it is some of them who managed to transport and sold their honey in Juba. They all said that they came together in order to learn more about beekeeping and farming practices and be able to sell large quantities of their products. When in groups, they can join hands for collective work in order to help one another. The benefits they get is like provisions of containers and being able to contribute money for transporting products to market places.

INFORMANTS INFORMATION ABOUT BEEKEEPING AND HONEY MARKETING:

The below information has been gathered from five informants; one beekeeper group leader, two development workers and two honey traders.

That honey sells better because it serves different uses: - as food and for medicinal purposes and its selling price is better than that of most farm products. If properly processed honey stores in good condition for long compared to farm produce like grains that are easily destroyed by weevils. On the other hand most farmers in the villages produce same farm items to the point that very few families or people would buy farm produces. The available markets in the large town are far for honey producers to access with their small quantities of farm goods to sell at a time. Traders however can come to buy honey right at the production locations. Honey is mostly sold in liquid form; measured in bottles, 5, 10 or 20 liters containers. If required in comb form, honey is transported in the air tight buckets.

The problems faced by beekeepers include un reliable markets, low prices imposed by traders who prefer to buy during the harvesting seasons, lack of suitable containers and lack of market information. Also that many buyers tend to buy honey in small quantities.

The market chain consist of the beekeepers, local traders within the boma or county, local beer brewers, travelers and NGOs that may help in connecting producers to a buyer or market. The informants are also aware that most honey is traded in liquid form where comb honey is offered when requested. Most centers of honey demand are the Mudri market, Rumbek, Juba, Uganda and Kenya through truck drivers. Locally the local brewers buy the bigger amount of liquid honey. Thus honey is traded within the payam while the rest is bought and transported to other states.

Given available market, many beekeepers have the will to treat beekeeping as business. It is still lack of exposure and market that many producers harvest enough quantities of honey to eat and sell for meeting only HH financial needs. If there is demand for honey in the main towns, beekeepers are ready to increase harvest. Some informants have realize that certain producers are able to deliver well graded comb honey as well as clean pressed honey other than boiled one.

That shortages are often felt during the off season or years of heavy rains. The major complain regarding the market are un reliability, low prices at the local markets, buyers are seasonal and markets of higher demand are far from the production areas. With regard to groups formation, beekeepers are just being encouraged to come together to share ideas, build centers to enable them sell honey together. In most cases, it is the traders that come to buy honey from producers at the boma. Some producers may at times take some quantities of honey in jerry canes for sale in the county or states capitals like Mudri and Juba.

Some informants suggest that beekeepers be provided modern hives, protective clothes and suitable containers for honey.

BEEKEEPERS MEETING AT KARIKA (June 6th. 2008)

Activity I

Sources of Income:

Thirty one persons attended the meeting although some of them turn out not to be beekeepers. The following sources of income generation where listed: - Cassava, chickens, sorghum, groundnuts, maize, honey, oranges, bananas, goats, cows, beans, sesame, onions, okra, tomatoes, potatoes, pineapples, sugar canes, coffee, mangoes, guava, pumpkins, yams, rice, pawpaw and teak.

In ranking these sources, each beekeeper was asked to give five most important sources and the below result was got.

1. Honey with 85 scores
2. Maize with 64 scores
3. Cassava and groundnuts each with 57 scores
4. Goats with 37 scores
5. Oranges with 35 scores.

The fact that cassava and groundnuts tie together follows the planting pattern. Very often the two are planted at the same plots of land where after removal of the groundnuts the cassava plants are left to mature for harvest after eighteen months. It is also apparent here that domestic animals are also important.

Activity II

Bees Products and Uses:

Honey	Beeswax	Propolis	Pollen or bee bread	Brood	Venom
<ul style="list-style-type: none"> - For cash - Food - Sweetener - For local brews - Medicinal for fire burns, cough, ulcers, sleeping sickness 	<ul style="list-style-type: none"> - Cash - Candle - Sealing holes in containers. - Baiting hives 	<ul style="list-style-type: none"> - Sealing hole in containers 	<ul style="list-style-type: none"> - Eaten with honey as food - Eaten to relieve stomach pain - Preparing yeast for local brew 	<ul style="list-style-type: none"> - Eaten with honey to avoid one get too thirsty - Use in preparation of yeast for local brew - Eaten by men to improve libido 	<ul style="list-style-type: none"> - Producers feel stings relief body aches despite the pain during harvest

Ranking: -

This is done according to number of uses of the products. They however look forward to having beeswax and perhaps propolis gaining prominence as cash earner if market could be made available.

- 1 Honey
- 2 Brood
- 3 Beeswax
- 4 Pollen

Activity III

Different Markets for Honey:

- 1 Individuals within the boma.
- 2 Traders within the boma, payam and county.
- 3 Local beer brewers.
- 4 NGOs (NPA).
- 5 Traders in other major towns like Juba, Yei.
- 6 Truck drivers to Uganda or Kenya

Considering the above markets, producers speak of Oxfam having bought comb honey once only. The reliable market is that of local traders, travelers or truck drivers because they buy in jerry canes to enable them meet financial demands. With much money from large sales, projects like buying of bicycles, motorbike and of other business items to sell in the village market is possible.

However for meeting immediate HH needs the local brewers are the reliable markets that are able to buy at any time in quantities ranging from bottles to jerry canes.

1. Traders
2. Individuals or travelers
3. Local brewers

Activity IV

Production Assessment

By the end of the discussions, all participants were asked to stand up; then those who sold four jerry canes and above were asked to remain standing and the production are as seen below: -

Four jerry canes and above - 14 persons were up.

Six jerry canes and above – 8 persons up

Eight jerry canes and above – 5 persons

Ten jerry canes – 3 persons

Above ten jerry canes – 3 persons.

The persons that sold over ten jerry canes were ready to increase production through hives increment and harvesting all hives in any given honey season. The persons that sold less than four gave reasons like most of their honey was eaten and others say they were involved in other farm activities.

TORÉ BEEKEEPERS SURVEY

County: Yei

Payam: Tore

Boma: Tore

Personal Information:

Fifteen beekeepers were interviewed. The number of dependants of these heads of families range from 2-17 persons with an average of 9 persons per HH. Thirteen producers own goats, ten own chickens and thirteen have bicycles where four have two each while one has three bikes. None of these producers have managed to buy a motorbike. The main crops commonly grown from 1-2 feddans are cassava, groundnuts, sorghum, sesame; and some beans and finger millet in smaller areas.

Section A: About Livelihood.

The items being sold for earning income are groundnuts, cassava, sesame, sorghum, honey, millet and goats. In mentioning the two most important ones, cassava, groundnuts, honey and goats were given by the producers. The people interviewed own varying number of hives; the production of which is supplemented by honey hunting during the dry season.

The women help their husbands in the following activities: - transportation of hives to the hanging sites in the forest and honey home during harvests, brew local drinks from honey to sell, sell some honey, help during harvesting time in facilitating the container and smoking grass bundle up and honey extraction through boiling or pressing. The honey so processed is sold, exchange with other items some times, while the rest is consumed. The quantities often sold range from 50-90% depending on available market and financial demands while 5-10% is eaten. Tore is situated on the busy Yei to Rumbek/Yambio high way where most commercial and relief vehicles travel. It is at Tore trading center that most travelers buy their honey. In general the beekeepers say that between 30-85% of their income is got from honey sales. The money received from honey is mainly used in marriages, buying bicycles, starting small business, buying medicines and household items and paying school fees.

Section B: About Beekeeping Practices.

The number of hives owned by producers range from 13-180 giving a total of 1029 for the fifteen beekeepers; with an average of 68.6 hives per person; giving an average yield of 15,435 kg for the Boma. Colonization rate of the producers' hives range from 13-180 giving an average of 97.8%. The cylindrical hives are mostly made from tree barks mainly *Terminalia spp* with a few constructed from creeping plants. This year, each of the twenty members of the two beekeepers groups have been given between two to three Langstroth hives by AAH. These hives are given each with two honey supers. According to producers, January-April, June and September are the months when bee foragers are very active.

The trees desirable for hive placement are those that are easy to climb, with branches between which hives can fit well and offer better sitting sites during honey harvests. These include “Abusudur” *Kigelia africana*, Shear nut trees, etc. Some beekeepers believe that once they place hives in certain trees, the colonies occupying their hives are always very aggressive.

During honey harvests, beekeepers report that brood combs with un ripped honey and pollen stores are left for the bees. Like those beekeepers in Bogori, producers here also reported always leaving the combs at the side where bee entrances are. However others say that after some years they have to remove all the old black combs from the bee entrances side to enable bees build fresh combs. Producers are aware that when brood combs and some un ripped honey is left, the colonies often survive.

Section C: About Beekeeping for Income Generation

The months of March-April and September are the major and minor seasons of honey harvests then June is the month where the least quantities of honey are harvested. In 2005, thirteen producers reported honey harvests ranging from 2-15 jerry canes that gave a total of 110.5 jerry canes (3094 kg), with an average of 8.5 jerry canes (238 kg); in 2006, 12 producers reported productions of from 1-20 jerry canes; with a total of 105 jerry canes (2940 kg) and an average of 8.8 jerry canes (246.4 kg). In 2007, thirteen producers gave production figures of from 1-16 jerry canes that total to 95 jerry canes (2660 kg) with an average of 7 jerry canes per producer (196 kg). Most of these quantities of honey were sold at Tore while very few producers reported having transported some of their honey to Yei.

Like in the other bomas, honey is mostly sold in liquid form having been processed by boiling, although many producers now extract honey by pressing or draining through perforated containers. However, owing to proximity to a honey processing factory in Uganda, much quantities of comb honey was bought from these producers in 2004 and 2005. Currently the liquid honey sells at 2-6 Spds per bottle at Tore depending on the season and method of processing; then 150-180 Spds per jerry cane at Tore. Meanwhile comb honey is reported to sell at 5-10 Spds per kilogram during harvest and off season respectively. Like in the other locations, producers here have not been selling any beeswax and only harvest propolis for sealing holes of domestic containers.

Section D: About Groups or Association Formation.

It is of recent that beekeepers have been organized into two groups. One is call Ramba and the other is Menje according to the two tribes found in Tore boma. In 2000, some beekeepers in Tore were registered with the South Sudan Honey Producers Association (SSHPA) of the then greater Maridi county. But owing to the long distance between Tore and Maridi the present two groups have been formed last year. Apparently the producers believe these groups serve them in training purpose and enable them work together with the aim of selling their honey together. That they have not realized any benefit apart from being given the Lansgroth hives. They hope to benefit further in delivery of air tight buckets and honey extraction machines.

INFORMANTS INFORMATION ABOUT BEEKEEPING AND HONEY MARKETING:

Seven persons: - two traders, two beekeepers group leaders, two beekeepers/traders and one development worker gave the below responses.

Business of honey is preferred for the fact that honey is valued for food and medicinal purposes. Honey is also used in various ways like in local brews and in marriages. The price of honey per unit measurement is better than that of other farm products that are also bulky. In good condition, honey also stores longer compared to grains. It is sold in different containers like bottles and plastic containers of various capacities. Mostly producers sell it in liquid and comb form when requested.

The problems faced by producers are unreliable markets, low price during harvesting time when producers are in dire need of money, often demand for honey is not consistent, lack of proper containers, hives are placed far away in the forests hence making harvests of September and October difficult due to thick bushes. The producers need some training in harvesting and proper honey handling. The players in the honey market include the beekeepers, local traders and those from major demand centers, travelers or truck drivers and local beer brewers.

Most honey is traded by producers in the main trading center at the Boma; which is fortunately at the main high way road from Uganda/Kenya to far inland: to western and northern parts of S. Sudan. The traders and travelers on their part buy and take the honey to sell in Juba or Yei and to Uganda and Kenya. Air tight buckets are used for harvesting, transporting and storage of the honey. Informants also feel that producers should use plastic drums for storage other than the ordinary fuel drums that rust and spoil the honey.

The major honey demand centers are Yei, Juba and Rumbek within the country and Uganda plus Kenya; being taken by travelers or truck drivers. In the production area, most liquid honey is sold to local beer brewers. With a reliable market available, informants feel that producers are capable to increase honey harvests. This is because honey is the most available and reliable source of income to beekeepers other than farm products. Shortages of honey are only during the off season; otherwise during the harvesting season all beekeepers do have honey to sell.

Most complain about markets are their being far where individual beekeepers are unable to transport their honey. Very often markets in the production area are not reliable as there are no regular buyers that can buy large quantities. Prices are often low during the harvesting period. The idea of groups formation has just been seen and informants consider this move as being helpful to enable producers have bargaining power on the honey price. The informants feel that producers need more training to enable them sell good quality honey and increase on quantities.

BEEKEEPERS MEETING AT TORE (June 12TH. 2008)

Activity I

Sources of Income:

Fifteen beekeepers attended the meeting and the following sources of income generation where listed: - Cassava, chickens, sorghum, groundnuts, honey, goats, beans, sesame, onions, fish, tomatoes, timbers, potatoes, sugar canes, maize, coffee, cabbages, rice, okra cowpeas, millet, bricks and grass.

To rank these sources, each beekeeper was asked to give five most important sources and the below result was got.

1. Honey with 52 scores
2. Cassava and goats each with 31 scores
3. Groundnuts with 21 scores
4. Sesame with 17 scores
5. Sorghum with 15 scores

Participants complain that groundnuts yield in their area is very low due to infestation by millipedes while sorghum yields are affected by birds infestation. Goats also play important role as they are mainly slaughtered in marriage and funeral ceremonies as well as to important visitors.

Activity II

Bees Products and Uses:

Honey	Beeswax	Propolis	Pollen or bee bread	Brood	Venom
<ul style="list-style-type: none"> - For cash - Food - Sweetener - For local brews - Medicinal for fire burns, cough, ulcers 	<ul style="list-style-type: none"> - Cash - Candle - Sealing holes in containers. 	<ul style="list-style-type: none"> - Sealing hole in containers 	<ul style="list-style-type: none"> - Eaten with honey as food - Eaten to relieve stomach pain 	<ul style="list-style-type: none"> - Eaten with honey to avoid one get too thirsty - Eaten by men to improve libido - Producers feel it is very nutritive 	<ul style="list-style-type: none"> - Producers feel stings relief body aches despite the pain during harvest

Ranking: -

This is done according to number of uses of the products. They however look forward to having beeswax and perhaps propolis gaining prominence as cash earner if market could be available.

1. Honey
2. Brood
3. Pollen
4. Beeswax

Activity III

Different Markets for Honey:

1. Local beer brewers
2. Traders within the boma or county.
3. Honey factory at Arua in Uganda
4. Travelers or truck drivers
5. Traders in other major towns like Juba, Yei.

Considering the above markets, producers speak of large honey purchases in 2004 and 2005 by a honey factory from Uganda; which unfortunately is no more buying these days. The reason given is that honey was reported to have much smoke and some of the buying agencies reportedly to have mix used the money purported for honey purchases. Thus the markets are rated as follows: -

1. Travelers or truck drivers.
2. Local traders.
3. Local beer brewers.

Activity IV

Production Assessment

By the end of the discussions, all participants were asked to stand up; then those who sold four jerry canes and above were asked to remain standing and the production estimates are as seen below: -

Four jerry canes and above - 10 persons were up.

Six jerry canes and above – 9 persons up

Eight jerry canes and above – 9 persons

Ten jerry canes and above – 9 persons

Fifteen jerry canes and above – 8 persons

Sixteen jerry canes – one (1) person

Some of those that sold less than 4 complain of being returnees, others complain of insecurity, honey badgers and others said they were busy in other agriculture activities. The ones that sold 15 said they are willing to increase production if security problems of the Ugandan rebels could be addressed, market is reliable and have enough containers.

WONDURUBA BEEKEEPERS SURVEY

County: Juba

Payam: Wonduruba

Boma: Wonduruba

Personal Information:

Fifteen beekeepers were interviewed in Wonduruba with their ages ranging from 28-48 years. The dependants of these 15 persons range from 3-15 persons giving an average of 9 per HH. Out of these persons, 12 beekeepers own bicycles with one of them having a motorbike. Thirteen beekeepers have goats and chickens and only four have cows. The common crops being grown are groundnuts, cassava, maize, sesame, cowpeas and pineapples to some extent. Eight people reported having grown at least over one feddan of coffee and some two persons have planted Teak trees. One of the 15 interviewed persons is a woman beekeeper who is also given the introduced Langstroth hives. Owing to some displacement due to insecurity, few of the beekeepers complained that they are unable to cultivate large areas due to not being in their original land; since they have to be allocated cultivated land by their hosts.

Section A: About Livelihood

The sources of earning money are by selling the following items: - groundnuts, coffee, sugarcane, guava, cassava, maize, honey, sesame, bamboos, charcoal, goats, beans and cows. When each producer is requested to name the best two sources of cash for the family, the following items were given: - Coffee and groundnuts, cassava and honey, sorghum, beans and sesame. Given the range of crops, it is apparent that these people are more of farmers than beekeepers. Only very few reported supplementing their honey harvests by hunting for wild bee nests.

The women in Wonduruba are also involved in beekeeping through: - cutting grass which is tied round the cylindrical hives, transport new hives to hanging sites in the forests and honey home during honey harvests, honey extraction, honey storage, brewing local drinks from honey to sell and selling honey for meeting HH needs. One beekeeper reported that one of his wives is able to harvest honey in some of his hives; while one person said that he does not get any assistance from his wife.

The beekeepers reported that they sell between 25-80% of their honey production, while 10-25% is consumed. Occasionally some honey is exchanged with other items like food or domestic animals. Many beekeepers say they get between 50-75% of their yearly income from honey. Being a farming community, beekeeping seems to gain ground from its importance to generate income. Market for honey in Wonduruba has improved after the signing of the peace agreement and the improvement of roads to Juba the main honey market centre.

The money received from honey is mostly used in marriage, buying bicycles, starting business activities, paying school fees, buying clothes and other HH items.

Section B: About Beekeeping Practices

The fifteen beekeepers interviewed own between 11-75 hives where the total number of hives for all of them is 466 with an average of 31 hives per beekeeper; giving an average production figure of 6,975 kg for the Boma. The rate of hives colonization is 94%. Most hives are the cylindrical traditional ones made from bamboo splits and a few from tree barks. However AAH has distributed Langstroth hives; where each beekeeper is given three brood chambers with two supers per brood chamber.

From February to April and May to June are the months that bees are reported to be most active. The trees for hanging hives are those with branches that offer best placement of hives and sitting place for honey harvesting; such as Ardeb (), shear nut etc. Trees that easily break or are fond of ants are avoided. During honey harvests, some honey combs and those with brood and pollen are left for the bees. The beekeepers know that colonies only survive when some honey and the brood is not removed.

Section C: About Beekeeping for Income Generation

February to March are reported to be the main honey harvesting season, September and early October is the second season next to the first. However June is a third harvesting season, giving the least yields of honey. Regarding honey productions, the beekeepers gave the following figures: - In 2005, 12 producers reported harvests ranging from 2-12 jerry canes giving a total of 66 jerry canes (1848 kg) with an average of 5.5 jerry canes per person (154 kg); 2006 production of ten persons ranged from 1.5-12 giving a total of 58.5 jerry canes (1638 kg) with an average of 5.9 jerry canes (165.2 kg) and in 2007, the production ranged from 2-10 for twelve producers which gave a total of 73.5 jerry canes (2058 kg) and an average of 6 jerry canes (168 kg) per beekeeper.

Most of the honey so produced was sold to traders within the boma, others was bought by a dealer in Kenya through AAH and the rest bought by travelers and local brewers. The honey being sold is generally in liquid form, being hand pressed and some extracted by boiling. It was nevertheless reported that comb honey was also sold on request. The price was from 2-4 Spds during harvesting time and 4-8 Spds during off season per bottle in Wonduruba. Honey extracted through boiling fetches the lowest price than the hand pressed. Comb honey is sold at 4-5 Spds per kilogram.

All producers interviewed have not sold any beeswax as they lack the skills for extraction and more so, no market or demand for this product has been realized. Propolis has only been harvested for gluing holes or leakages in domestic containers.

Section D: About Groups or Association Formation

With the coming of AAH to the county, beekeepers were encouraged to form groups or associations for easy delivery of training and some beekeeping equipments. As such four groups have been organized in the county; that are Lukalogo, Gobur, Pajukido and Jomaring. The objectives known to the beekeepers who are members of these groups, are working together, learning from one another and be able to sell their honey at one

collection center per group. As for now, the benefits realized are the provision of the air tight buckets and the Langstroth hives.

INFORMANTS INFORMATION ABOUT BEEKEEPING AND HONEY MARKETING:

Ten informants were interviewed and gave the following information about beekeeping and honey marketing in Wonduruba. That it is better to sell honey for the fact that it is needed as food as well as once eaten it serves as medicine for some common sickness. In addition prices for honey are rewarding for a given quantity compare to that for most farm products. Trader for honey may come looking for the commodity right to the village or the boma trading center once they know it is available. Most honey is sold in the local market in liquid form measured in bottles, jerry canes and some as comb honey in the air tight buckets. Many traders in need go to buy at farm gate. AAH had bought comb honey for a certain business man in Kenya who is willing to continue buying according to the reports.

The problems faced by producers at most are lack of reliable markets, lack of storage facilities/store or common shop for the producers, lack of skills for proper honey handling and quality improvement, lack of marketing information and distant main centers of high market demands. The main market players are the beekeepers, local beer brewers, local honey traders, travelers and market facilitating NGOs. Honey is traded in liquid form having being extracted by boiling in fire, hand press or drain through perforated containers. When requested graded comb honey is also sold. That for better trading in honey, beekeepers need air tight buckets and plastic drum instead of the ordinary un coated metallic drums being use for storing processed honey.

The main demand centers for honey are Juba and Yei for producers at Wonduruba. It is reported that bulk of the honey to Juba is sold further to honey dealers in Khartoum. Honey produced here is bought and traded out side the boma; except the one made into local brews. With the formation of beekeepers into groups, the proximity of Wonduruba to Juba and improve road transport, many beekeepers now tend to look at beekeeping as for business. It is only that they are not properly organized and lack the means of transporting their honey to the market centers. Thus producers are aware of the potentials of honey and beeswax as sources of income. Therefore should there be any increase in demand for honey, producers are seen as being able to harvest more honey.

Honey shortages are only felt during the off season. This in most cases might be artificial because many beekeepers do keep honey at home and with lack of information, people may not know that some honey is still available. The major complains about honey market is the unreliability, low prices during the harvesting seasons, main and well paying markets are often far from the production locations. Most informants appreciate the formation of groups by producers to enable them learn more about beekeeping and have bargaining power over the prices.

WONDURUBA BEEKEEPERS MEETING (June 24th. 2008)

Activity I

Sources of Income:

Only ten beekeepers attended the meeting and the following sources of income generating items were listed: - Cassava, chickens, sorghum, groundnuts, honey, goats, beans cows, millet, potatoes, coffee, sugar canes, bananas, pineapples, bamboos, mangoes, charcoal, poles, okra, grass, bricks, oranges and guava.

To rank these sources, each beekeeper was asked to give five most important sources and the below result was got.

1. Groundnuts 15 scores
2. Cassava with 13 scores
3. Coffee with 9 scores
4. Bamboos with 7 scores
5. Goats with 6 scores

Honey, sesame and beans each with 5 scores were rated below the best five. Although this may not reflect the true picture given the few participants, it still indicates that beekeeping is not a main traditional activity; but is only being taken as means of income generation. This is supported by the average low number of bee hives own by individual beekeepers.

Activity II

Bees Products and Uses:

Honey	Beeswax	Propolis	Pollen or bee bread	Brood	Venom
<ul style="list-style-type: none"> - For cash - Food - Sweetener - Medicinal for fire burns, cough, body smear to smoothen skin 	<ul style="list-style-type: none"> - Cash - Candle 	<ul style="list-style-type: none"> - Sealing hole in containers - Eaten to treat tooth ache 	<ul style="list-style-type: none"> - Eaten with honey as food - Boil with lemon and water against cough - Eaten to relieve stomach pain 	<ul style="list-style-type: none"> - Eaten with honey to avoid one get too thirsty - Eaten by men to improve libido - Makes one feel relax after eating 	<ul style="list-style-type: none"> - Producers feel stings relief body aches despite the pain during harvest

Ranking: -

Being done according to number of uses for each product. They however look forward to having beeswax and perhaps propolis gaining prominence as cash earner if market could be made available.

1. Honey
2. Brood
3. Pollen
4. Propolis

Activity III

Different Markets for Honey:

1. Local beer brewers
2. Local traders within the boma and those from Juba.
3. Individuals or truck drivers
4. AAH
5. Transport honey to Juba

Considering the above markets, local traders that buy honey to sell other traders in Juba purchase most of the honey. The second important buyers are the local brewers with AAH third due to its ability in buying relatively large quantities of comb honey.

1. Travelers or truck drivers.
2. Local brewers.
3. AAH.

Activity IV

Production Assessment

By the end of the discussions, all participants were asked to stand up, and their number being small; we only found that three persons sold eight (8) jerry canes of honey. The rest sold 1.5- 2 jerry canes of honey. We were informed that most of the serious beekeepers that harvest much quantities of honey did not turn up for the meeting.

CONCLUSIONS:

Personal Information

The art of beekeeping among the four communities of Bogori, Karika Tore and Wonduruba is passed from grand parents to children; where from childhood, male children follow their fathers and learn hives construction and beekeeping management. By 18 years on wards they make their own hives, from which they harvest honey to sell for their income to meet their personal financial needs such as buying clothes, their own bicycles and keep some for marriage. After marrying couples begin to have dependence often young children from either family's side (wife's or husband's family). In addition to bicycles and motorbikes, domestic animals from chickens to cows are also bought. Most families cultivate all the common food crops ranging from less than a feddan to three feddans depending on individual HH and means of cultivation (use of communal labour or oxen). It is the surplus of these crops, domestic animals, honey and other available items that are sold for income generation by beekeepers and subsistence farmers.

Thus beekeeping practices being a deeply rooted activity in S. Sudan with honey plus other honey bees' products being important sources of income generation to alleviate poverty, the activity desires to be promoted by introducing improved practices by building on what producers already know to raise their standards. As already recognized by the males, the involvement of women at various stages of beekeeping needs to be encouraged for their full participation in particularly honey quality improvement and handling. With the eventual introduction of movable hives Kenya top bar hives, women beekeepers can afford and manage bee colonies for honey and other bee products production for cash earning.

About Livelihood:

In South Sudan, cotton and tobacco were grown for cash earning in late 1960 to 1970s. Coffee, oranges and pineapples were grown as cash and food crops up to mid 1980s; but owing to the just ended civil war these crops were over come by grass growth and destroyed by fire as farmers run to the neighboring counties or bushes for safety. So beekeepers/farmers in the four surveyed bomas have to sell food crop surplus to earn cash. It is in Karika and Wonduruba that oranges and coffee are being revived for income generation. Domestic animals like chickens and goats are to some extent being sold in the four counties for cash earnings.

Apart from the inability to climb trees to access bee hives and tolerate the vicious bees during honey harvests, women's contribution in most aspects of honey production is recognized by men in the four communities. Women contribute in hives construction, transportation of hives and honey, extraction and storage plus selling of honey. Apparently up to 80% of honey harvested is sold while 10-25% is consumed. From 50-75 of families earning is reportedly got from honey sales. In the four counties money received from honey sales is used in marriages, purchases of capital goods like bicycles, motorbikes, domestic animals and small business ventures in addition to paying school fees and buying HH items.

About Beekeeping Practices:

In the four counties of Mvolo, Mundri West, Yei and Juba beekeepers owe an average of 91, 46, 68.6 and 31 hives per person (yields of 2,548 kg, 1288 kg, 1,921 kg and 868 kg respectively) and hives colonization is 71%, 85.5%, 97.8% and 94% respectively. There are thus enough bee colonies over there to occupy hives. Suitable trees for natural hives hanging are selected on the basis of easiness to place hives, climb and sitting when harvesting honey. The beekeepers are aware of the bees need for honey and their brood, thus during harvest some honey and the brood is left for the bees for the colonies to survive. With some training, beekeepers are able to improve on honey quality especially avoiding honey extraction through boiling on fire.

Taking off from the existing knowledge of traditional beekeeping, honey production levels and cash earning by producers families could significantly be increased through timely and regular honey harvests of all colonized hives, use of suitable containers for harvesting and storage as well as creation of reliable markets for improved honey and other bee products quality and sensitization of producers on marketing skills. Further improvement on locally constructed affordable hives and management skills and introduction of the KTBH shall easily follow if producers can realize tangible and sustainable benefits in form of income generation from what they have.

About Beekeeping for Income Generation:

In general there are three honey harvesting seasons in the four counties. The average honey harvests in 2005, 2006 and 2007 in Bogori, Karika, Tore and Wonduruba are 9, 9.2 and 8.7 jerry canes per beekeeper respectively. Mostly honey is sold in liquid form, being processed previously by boiling on fire; but now mainly by hand pressing or draining through perforated containers or mosquito wire mesh. Prices vary from 2-8 Spds of liquid honey per bottle and 4-10 Spds of comb honey per kilogram depending on the season, and method of processing. Beeswax and other bees' products are not being processed or harvested to sell for supplementing income from bees' products.

Upon improvement of honey quality as mentioned above, beekeepers' groups or associations' formation be encouraged and geared towards strong organizational structure. This requires that groups endeavor to have central honey collection centers or shop with well clear label or advertisement. Then some kind of linkages of such centres to the main honey demand points be established as well as with market information exchange.

About Groups or Association Formation:

Although the beekeepers association in Maridi had been formed in 2000 through facilitation by Catholic Relief Services (CRS) other beekeepers groups formation in the four bomas have just been encouraged by NPA in Bogori, Oxfam UK in Karika and AAH in Tore and Wonduruba respectively. The objectives as understood by beekeepers is to enable them work together, learn from each other and sell honey in groups when ever possible. The benefits that producers have realized among others are training, buckets plus modern hives provision and to some extent honey market facilitation.