

# APPROPRIATE TECHNOLOGIES FOR APICULTURE WITH TRIBAL COMMUNITIES IN THE NILGIRIS

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## **Introduction**

Keystone has been working with honeyhunter groups from tribal communities in the Nilgiris for the past four years on various issues of natural resource management and rural development. One of the focal points in this effort has been apiculture and related activities.

The tribal communities with whom Keystone works - the Irulas and the Kurumbas, are traditional hunter gatherers. Earlier, they would cultivate some millet and collect fruits, roots and hunt small animals. Today, they have been settled on some land and houses provided by the government. Seasonally, they still collect some items from the forests but for the most part, work either in their small plots or in nearby tea plantations as wage labour.

Honeyhunting is a traditional activity that has been going on for thousands of years. This relationship of the tribals with the bees is very special and year after year they go back to the forests and nearby cliffs to collect honey. During this period, all other activities are put aside as they spend their time in locating colonies, planning the collection, getting their gear ready and harvesting the honey. Each group still has their own unique technique which is suited to their local availability - nesting areas, raw material and their own skills. Most of the honeyhunting takes place from the Indian Rock Bee - *Apis dorsata* and sometimes with the smaller Asian Honey Bee, *Apis cerana*.

A statewide survey in the state of Tamil Nadu, in 1994, took us to 15 different hill ranges and 11 distinct tribal communities practicing different techniques of honey hunting. It gave us a chance to see and hear about how communities have adapted different styles to their own particular environments - a sketch is attached as an illustration of one technique. Honeyhunting is very closely associated to tribal culture and traditions. It is also a lucrative income generating option because of the large amounts of honey that can be harvested at one time. But the honeyhunters are unorganized, face a number of risks and get very low returns. Today, this group of people is threatened:

- # forests have been destroyed, reducing foraging options for bees
- # cash crops have made their entry bringing along high amounts of chemical, these have reduced the number of colonies
- # the economy has become cash oriented, they have not been able to adapt yet
- # areas have become demarcated and they have been asked to settle down in fixed, earmarked areas
- # exploitation by middlemen
- # no development to make this activity safer

Beekeeping, is nearly as old an activity - people have been keeping bees in their house walls, logs, pots and even hay stacks for thousands of years. However, beekeeping in the modern sense, is a very recent activity - just a hundred years old. Father Newton, developed a hive for the Asian honey bee, *apis cerana*, based on his experience with the European bee. However, this hive has today become synonymous with modern Indian beekeeping. For any beekeeper, it is much more prestigious to link himself with the Newton hive rather than talk about his traditional systems. The govt has tried different projects on beekeeping with tribals but most of them have failed not because of lack of facilities, technology or anything else but simply because they have failed to approach the issue from the perspective of the tribals. Beekeeping, since the last few years, has been affected by the Thai Sac Brood Virus which kills bees at the larval stage itself. There are estimates that 80-90% of the indigenous *apis cerana* population has been wiped out during this period. Many beekeepers who were totally dependent on honey, have lost their income source.

## **Appropriate technology**

An appropriate technology in apiculture with tribals has to allow for local resources, their way of life, their outlook, their skills, traditions and their special relationship to the environment around them. Most of the time, it is a process which first involves unlearning our ideas, education and biases before we can even start to understand even a microcosm of their perspectives and thinking. This experience with this unique group of people has been a learning experience for us at Keystone and we share this, at the workshop.

Appropriate technology in apiculture has to be very clearly split between the two groups that practice beekeeping and honeyhunting. One of the things that we have realized during the work with these groups is that most honeyhunters are not very good beekeepers. They are so used to the fact that they can go out into the wild and collect honey without going through the pangs of keeping a hive that it becomes difficult for them to visualize the entire process.

Also, we would like to define appropriate technology, not only in terms of the activity *per se* but all other related activities, too. Thus, there has been an effort to build a strong development enterprise around the products resulting from honeyhunting and beekeeping. The product has to be the best available, the packaging has to be innovative and eco-friendly and the enterprise, economically viable.

One crucial factor is how they view an outside agency. It has taken us nearly 1-2 years before they started accepting us. It takes constant interaction before they begin to develop a relationship.

### **With honeyhunters**

Honeyhunting is an activity that is usually undertaken by a group of 5-7 persons. The preparation for the final activity requires location of the colonies, the proper forest vine, making the ladder, carrying to the cliff and setting it up. The final harvesting would take just a few hours depending on the difficulty of each cliff and the no. of colonies.

Even though, honeyhunting is such an age-old activity, hardly any change has taken place - they still use the same techniques, the same raw materials. Our role here has been to facilitate interaction between different groups, so that they can learn and interact. We have also been able to show videos of honeyhunting taking place in other areas - all this has helped them to make small adjustments in their gear and techniques.

Overall, they still exhibit a fine understanding of natural systems. There are certain areas they call as "god cliffs" and no colonies are harvested from those cliffs. In an ecological sense, these would form excellent gene pools. Also, if they find that there is hardly any honey flow, they leave the rest of the colonies, allowing the growth and expansion of colonies.

However, for the honeyhunters, their main difficulty is when they try to sell their honey. Earlier, honey would be an item they used for barter but today, the cash economy around them takes its toll. The local traders and customers, label wild honey as of not being of very good quality and immediately the honeyhunter's bargaining power drops - he is not able to get a good price. Today, there have been changes introduced in their style of extraction of honey and the quality is excellent. Earlier, the honey would be squeezed and this meant that bees, larvae and all other sorts of material would get crushed along with the comb. This made the honey dull and murky. It also increased the chance of spoilage. Today, the comb is cut along the midrib and cut into small pieces. These pieces are then put into a white cloth which is tied to a tree or on the beam of his hut. Crystal clear honey drains out. For processing, a simple multi-stage filtration process, ensures the removal of bees wax and most of the pollen. This honey is then bottled, packed and priced competitively.

Bees wax used to be an item that used to be wasted earlier. Today, bees wax is collected and value addition has made it an attractive proposition. Production of candles and diyas has made them realize the worth of bees wax. In the initial days, bees wax used to be boiled along with water, filter and then allowed to cool. But, the oils in the wax were lost. Today, a locally designed solar wax extractor, ensures that high quality wax is recovered.

### *Limitations:*

The commercialization of the activity means that in some areas, the entire tradition of rituals and customs have lost their meaning. This means that the hunters hunt colonies without finding out if the honey is mature or not - even if there is a little bit of honey, they will hunt. Some "god cliffs" are now prey to these groups. With increasing pressure on the forests around, less honey per comb also means that some hunters do not respect the territoriality which existed earlier.

The honeyhunters might accept a new technique and decide to try it out during the next harvesting. But, if by chance, their first attempt does not succeed, they will immediately throw it aside and carry on with their old system. There is no attempt to try and modify it a little more to see if the idea will work.

### *With beekeepers*

The Newton hive has become very popular and is today spread across the country but it has its limitations when it comes to handling with tribals. For them, it is a completely alien technology - complicated to figure out and difficult to handle. At some places, it has been found being used as a stool in a tea shop, a picture frame or the honey extractor is being used as a water container. The Newton hive has limitations not only in the design but also in its management practices.

This need to develop something appropriate was accentuated because of the disease situation - the Thai Sac Brood Virus. There is a need for a greater no. and easily accessible colonies. Thus, with improvisations on a design from Bangladesh, a basket hive has been developed. This hive is made from bamboo and forest vine. It can be made by the local weaver and the raw material is freely available from the forest area. Even after costing, the hive costs only about Rs. 200/- while the Newton hive costs nearly Rs.600/-. The hive design also follows the pattern of colony building by bees in nature. Its advantages are:

- # larger/stronger colonies which help in withstanding disease, predators, dearth period
- # multiplication of colonies

- # easier observation and maintenance
- # less time required for maintenance
- # cost effective
- # use of local skills and resources
- # availability of both honey and bees wax
- # high pollination potential

Slowly an interest has been built into the beekeepers and today they can hive their own colonies, manage boxes and extract honey without anyone's help. Over time, their self confidence has increased and this has shown up in the fact that today most of the older beekeepers do not feel the need for somebody else to look at their hives. They have seen the potential of beekeeping as a viable economic activity and so they can continue to work at it.

*Limitations:*

The entire activity has to be made continuously interesting for the beekeepers. If one goes on talking about bees, they will soon lose interest. A number of other related activities like agriculture or some need related activity have to be also taken up.

**Conclusions**

As we move closer to the beginning of a new century, we need to have a fresh look at the roles of these beekeepers and honeyhunters in the environment around us. Most of these groups are close to forest patches and their activity centres around the availability of such patches. Keystone sees it's role in providing them with a distinct identity - no govt. policies and programmes envisage a role for them. They are traditionally a shy group and do not like to reveal details about their activity. There has to be a sense of pride and unity - then only can they negotiate about better opportunities and options for the group. Any adverse effects on their activity will have the following results:

- # They are in a sense, the protectors of the forest - destruction of prime forest areas would mean that natural habitat areas for the bees will be lost and the honeyhunters and their families would lose one of their sources of livelihood. They have to be made part of the conservation activity.
  
- # Today, we still do not have a full understanding of the pollination cycle that is possible because of the bees. *Apis dorsata* has a foraging range of upto 10 kms and it is migratory in nature - what are the multiplier effects - do we have any idea?
  
- # Most of the honey and bees wax available in the Indian market (between 60-70%) is from *apis dorsata* - there will be a drastic reduction in the quantities.

Paper by:

Mathew John

Keystone, PB 35

Kotagiri 643 217

Nilgiris

Ph/Fax: 04266-72277

e-mail: [keystone@giasmd01.vsnl.net.in](mailto:keystone@giasmd01.vsnl.net.in)