



# FEASIBILITY STUDY OF HONEYBEE LIVELIHOOD IN UDALA AND BADASAHI BLOCK IN MAYURBHANJ DISTRICT, ODISHA

Soma Bhunia

## ABSTRACT

Honey bees are efficient pollinators for various plants used in agriculture, horticulture, silviculture, fodder, and the wild. The focus on honey bees and their role as efficient pollinators in various agricultural and ecological settings. It highlights the different species of honey bees found in India and their importance in the collection of honey and non-timber forest products (NTFPs). Wild honey collection remains a prevalent practice among tribal communities, providing a significant portion of their income. However, collectors face challenges such as venturing into dense forests and the risk of accidents. Beekeeping, on the other hand, offers sustainable livelihood opportunities for small farmers and landless individuals, contributing to ecological and economic benefits. Successful beekeeping relies on factors like selecting suitable bee species, effective colony management, and the availability of bee-friendly flora. Abiotic and biotic factors, including climate, weather conditions, and mite infestations, also affect honey production. The study aims to assess the current status of honey bee livelihood, analyse market availability and benefits, and develop strategies to enhance productivity, particularly in the Mayurbhanj district of Odisha. The establishment of Farmer Producer Organizations (FPOs) and beekeeping projects can promote sustainability and provide income sources for both wild honey collectors and beekeepers.

**KEYWORDS:** Honey bees, Agriculture and horticulture, Wild honey collection, Tribal communities, Beekeeping as a livelihood, Ecological and economic benefits, Market availability and benefits. FPO (Farmer Producer Organisation).

## INTRODUCTION

Honey bees are efficient pollinators for various plants used in agriculture, horticulture, silviculture, fodder, and the wild. Honey bees are known for constructing perennial colonies using wax, creating large colonies, producing surplus honey, and attracting foraging animals such as honey badgers, bears, and human hunter-gatherers. Currently, there are eight recognized species and 43 subspecies of honey bees worldwide. In India, four main types of honey bees are widely recognized such as Rock Bee (*Apis dorsata* Fabricius), Asian Honey Bee (*Apis cerana* Fabricius), Little Honey Bee (*Apis florea* Fabricius), Dammer Bees (*Trigona* spp. and *Melipona* spp.). Wild honey collection is still prevalent throughout the country and has ancient origins. Tribal communities living near forests heavily rely on wild honey collection, which accounts for 50% of their income, along with the collection of non-timber forest products (NTFPs). However, wild honey collectors face numerous challenges during their activities, including the risk of venturing into dense forests and the potential danger of falling from trees and hills. Globally, there are over 20,000 species of wild bees, and while some can be domesticated for beekeeping and management, the majority remain in their natural state. Beekeeping is considered a sustainable livelihood that offers ecological and economic benefits to small, marginal, and landless farmers. The profitability of the beekeeping industry depends on factors such as selecting appropriate bee species, effective colony management, and the availability of bee-friendly forage. Honeybees are essential as versatile pollinators, playing a crucial role in the extensive pollination of various crops, including field crops, vegetables, and orchard crops. The availability of surplus honey within a hive depends on the presence of nectar-secreting plants in the surrounding area. Thus, having suitable bee flora and an adequate carrying capacity for pollen and nectar are prerequisites for successful beekeeping. In addition to ecological factors, various abiotic and biotic factors also influence honey production by bees. Abiotic factors, such as climate and weather conditions, can impact bee activity and foraging behaviour. Biotic factors, such as mite infestations, can also affect honey production. The significance of honey and its medicinal uses are documented in ancient Ayurvedic texts. After India gained independence, efforts were made to revive traditional village industries, including beekeeping, through organizations like the Khadi Village Industries Commission (KVIC). These initiatives, along with research projects and coordinated efforts, have propelled the beekeeping industry in India, providing sustainable livelihood opportunities. This study aims to assess the current status of honey bee livelihood, analyze market availability and benefits, and develop strategies to enhance productivity in the sector. By establishing Farmer Producer Organizations (FPOs) and promoting beekeeping projects in the Mayurbhanj district of Odisha, both wild honey collectors and beekeepers can benefit from a sustainable source of income.



## METHODOLOGY FOR STUDY

The feasibility study of Honeybee Livelihood is conducted in Udala and Badasahi block of the Mayurbhanj District, Odisha. The criteria use villages was where people are involved in wild honey collection and having the potential of doing honeybee livelihood. To understand all the aspects of the wild honey collection the study was conducted in Baniadhar and Kasikundala village in Udala Block and to find out the potential of beekeeping the study is conducted in Guabehera village in Badasahi Block. To conduct study the primary data were collected through random sampling method in 3 villages. In 2 village of Udala block total 50 sample were collected, each village 25 sample where people were only involed in wild honey collection. In Baniadhar village of Badasahi Block total 50 sample were collected where people have involved in other livelihood, in previous time who were involved in wild honey collection not in present time. Other than sample survey the data is collected by preparing PRA with community (Resource map, Mobility map, Trend analysis, pairwise ranking), case study, cash flow analysis was done. The secondary data were collected from Panchayat office, Agriculture office, Horticulture office, Forest office, FPO, NABARD and SOOVA etc.

## RESULTS AND DISCUSSION

### Socio-economic profile of wild honey collectors

Baniadhar and Kashikundala villages were inhabited exclusively by the Lodha tribes, who primarily engaged in the collection of wild honey. Additionally, they were involved in agricultural work, operating small shops, working with stones, and serving as intermediaries in the honey market. Within the villages, approximately 59% of the population was engaged in agricultural activities on their own land, while 23% worked on leased land. Nearly 96% of the villagers possessed less than 1 acre of land.

The task of collecting wild honey mainly fell upon the youth, as it required physical and mental strength. However, around 59% of the wild honey collectors had no formal education, which posed challenges in terms of maintaining quality, adopting technology, understanding the market dynamics, and setting appropriate prices. Consequently, this lack of education hindered their ability to maximize profits from their livelihoods.

### Practice regarding to rearing and harvesting of honeybee

In Baniadhar village, every household is involved in wild honey collection, while in Kashikundala village, out of 65 households, approximately 53 households participate in this activity. These villages are located near the Similpal forest, the largest biosphere reserve in Odisha, where they gather wild honey and non-timber forest products (NTFPs). In the similpal forest only two types of honeybees are found like little bee and Rock bee. To access the honey, they travel 100 km into the forest, reaching locations such as Makdasi, Sarbasa, Kulipal, Devkunda, and Hadhadi. During their honey collection trips, they form groups and stay in the forest. They carry harvesting materials like buckets, knives, and pots for storing honey, as well as food, medicine, and other supplies. They mostly prefers honey collection in morning and night time to reduce the risk of bee attack.

No of people	2 to 4 days	5 to 7 days	7 to 9days	More than 9 days	Alone	total
3 to 5 people	6	2				8
6 to 10 people	7	12	8	1		27
More than 10 people	9	3	2			14
Blank					1	2
Grand total	22	17	10	1	1	51

Among the wild honey collectors, approximately 54% of the people prefer to venture into the forest with a group of 6 to 10 people and stay for 5 to 7 days. Around 28% of the participants prefer larger groups of more than 10 people, and they stay for 2 to 4 days. Going in larger groups reduces the time and effort required for honey collection, making it easier to gather honey within a shorter period. It also highlights the strong social bonding among the villagers. When going into the forest as a group, they generally prefer to have an experienced person with over 10 years of knowledge in honey collection. These experienced individuals possess better understanding of honey bee types, characteristics, sources, and various challenges associated with honey collection, as well as strategies to overcome them. After honey collection they kept a portion of beehive for regeneration of honey.

### Gender vs wild honey collection

Women play a significant role in the activity of wild honey collection. They accompany their husbands to the forest for this purpose. In both villages, approximately 75% of the people engaged in wild honey collection allow their women to join them in the forest. However, they restrict them from directly collecting honey from risky locations such as trees and hills, where the danger to life is higher. Women's involvement mainly revolves around tasks like preparing food in the forest and gathering other non-timber forest products (NTFPs) such as Mahua, Sal leaves, mushrooms, and medicinal plants. These additional products serve as a source of extra income for them.

On the other hand, the remaining 25% of wild honey collectors do not include women in wild honey collection activities. This is because the collection areas are situated deep within the forest, spanning a distance of 100 kilometres, characterized by diverse flora



and various types of fauna. The risks of encountering wild animals and facing difficulties in climbing trees and hills for honey collection are high. Moreover, these individuals also need their wives to take care of elderly family members and children at home. In group

**Belief related to wild honey collection**

Superstition encompasses various belief systems held by individuals. When it comes to wild honey collection, people have different superstitions, such as worshipping gods, singing songs before going to wild honey collection, and consumption herbal plants in order to avoid bee stings. In Baniadhar and Kashikundala village approximately 51% of wild honey collectors hold superstitions related to their honey collection activities. Prior to venturing into the forest, they perform worship ceremonies for their village deities at home. Once in the forest, they worship the surroundings, considering the forest as a maternal figure that provides for them without expecting anything in return. The wild honey collectors those aged between 45 and 80, tend to place a higher belief in superstitions surrounding wild honey collection. For their belief they didn't use any safety cabinet during wild honey collection. Only 25% people use sack as a safety cabinet during honey collection. So, there is high risk of fall down from tree and hill.

**Quantity & quality of wild honey production**

In Baniadhar and Kashikundala villages, the villagers engage in honey collection during June, July, and December, with June being the most fruitful month. The duration of honey collection varies among individuals, with approximately 72% of respondents collecting honey for all three months, yielding an average of 6.3 to 9.3 kg per term. In the current year, around 80% of people earned an income ranging from Rs. 1,000 to 4,999 in June, as they ventured into the forest three to four times during this period, resulting in a higher yield.

Maintaining honey quality is not a priority for the wild honey collectors in both villages. They follow traditional collection methods and do not employ any technological processes. Plastic, nylon, steel, or aluminum pots are used for honey storage, with approximately 50% of collectors opting for plastic pots due to their affordability and lower risk of breakage compared to glass pots. The lack of knowledge regarding quality maintenance leads to an immediate sale of honey after harvesting, with no provisions for future storage. During honey sales, the SOOVA organization does not assess honey quality. Only 20% of respondents indicated that middlemen occasionally evaluate the quality using traditional methods such as observing if honey falls immediately when placed in cotton cloth (indicating duplicity), burning honey in cotton cloth, or pouring honey into a glass of water to check for immediate mixing (also indicating duplicity).

**Challenges And Risk**

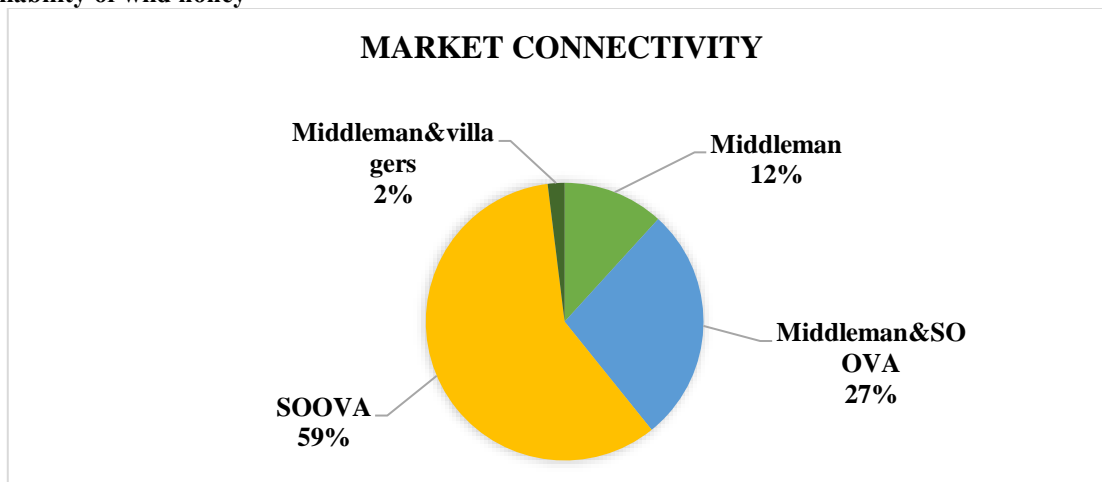
In Baniadhar village, all the household and in Kashikundala village, out of 65 households, around 53 households are engaged in wild honey collection, which has been an ongoing tradition. However, their involvement in wild honey collection exposes them to various constraints, some of which have resulted in fatalities.

Types of problems	Percentage	Category
Fear of fall down from tree and hill	65%	Problem 1
Animal attack	65%	Problem 2
Interfere of Forest officer	33.30%	Problem 3
Low honey price	45%	Problem 4
Bee attack	52.90%	problem 5
Health problem	72%	problem 6

Among the 51 respondents from both the village, 65% identified wild honey collection itself as problem 1, for which they lacked a solution. As a result, they relied on experienced individuals to track the hills. Approximately 65% of the participants ranked animal attacks as problem 2. Since they ventured deep into the forest, around 100 km, for honey collection, they faced a high risk of encountering wild elephants, bears, snakes, and other animals. To mitigate these risks, they preferred to go in groups and carry weapons. About 33.3% of the participants ranked the interference of forest officers in wild honey collection as problem 3. If officers noticed anyone collecting wild honey and other non-timber forest products (NTFPs), they confiscated the collected items, impacting their source of income. Therefore, they preferred to enter and leave the forest in the early morning to avoid detection. Approximately 45% of the participants ranked low honey prices as problem 4. The villages faced transportation challenges, leading them to sell their honey within the village to middlemen and organizations like SOOVA without any processing in low price then the actual market price. Bee attacks were ranked as problem 5 by 52.9% people. They didn't use any safety cabinet during wild honey collection. Additionally, as they lived inside the forest, bees often entered their homes and posed a threat to their children and other family members. About 72% of the people ranked health problems as problem 6. However, this issue was not considered major as they belonged to the physically and mentally resilient Lodha tribe. Due to climate changes in the forest and the physical demands of their work, they occasionally faced illnesses. In such cases, they relied on herbal medicines like Patalgoruda and Gangasiuli plants for recovery.



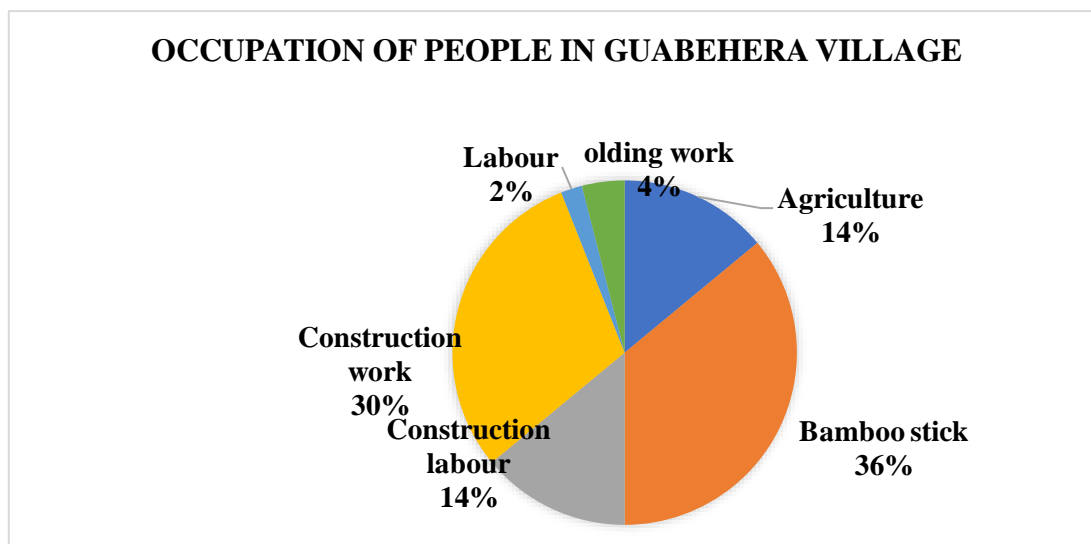
**Market Availability of wild honey**



The tribal people of Baniadhar and Kashikundala villages engage in wild honey collection, which contributes to less than 50% of their income. They sell their honey directly to middleman in their home itself, market (Khunta, Valagadia, Patsanipur, Mamudia, etc) and to FPO (Maa Durgadevi Producer Company Limited). In terms of honey marketing, 59% of wild honey collectors in these villages directly connect with the SOOVA organization Farmer Producer Organization (FPO) for selling their honey. Another 27% are connected with both middlemen and the SOOVA organization, while only 12% directly engage with middlemen at Rs. 200 to 300. A mere 2% sell their honey to local villagers in nearby markets Rs. 200 to 300. The preference for the SOOVA organization stems from its convenience—buying honey from every house at a fixed rate of Rs. 300 to 350 eliminates transportation costs and quality checks. Illiteracy prevails among the tribal residents of Baniadhar village, leading to limited market knowledge. They do not store their honey, immediately selling it to traders who visit their homes, as going to the market (more than 10 to 15 Km distance) is time-consuming, cost effective and transportation facilities are inadequate. Approximately 59% of the population in both villages lacks education, resulting in the use of symbols on pots as a means of measuring honey quantity instead of using weighing machines. This practice poses difficulties in handling and reading weight measurements.

**STRATEGIES FOR HONEY BEE LIVELIHOOD**

In Guhabehera village, approximately 34% of the population, belonging to the Scheduled Caste (SC), were engaged in Bamboo Artisan work. Only 14% of the villagers are involved in agriculture due to the problem of water scarcity. Agriculture work is primarily livelihood during rainy season. Around 34% of the people are directly involved in construction work, which includes individuals from all castes. Those engaged in agriculture and Bamboo Artisan work also participate in construction activities. To reach the construction site in Badasahi, they have to travel a distance of 4 km.

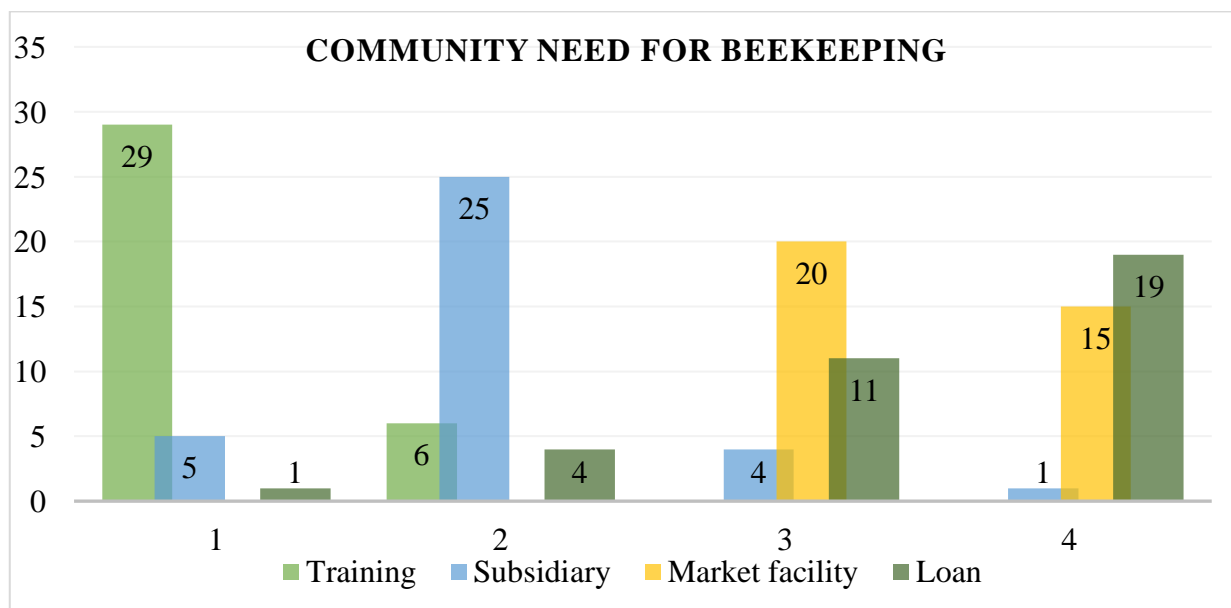




Farmers receive six months of work in agriculture, earning an income of Rs. 10,000. Construction work provides employment for nine months, as agricultural activities are postponed for three months during the rainy season. Skilled masons earn a wage of Rs. 400 per day, while helper masons receive Rs. 200. Due to inadequate transportation facilities within the village, they occasionally face challenges in reaching their work sites on time, resulting in delayed arrivals or staying home. The collection of Non-Timber Forest Products (NTFPs) provides a yearly income of Rs. 10,000. Major NTFPs collected include wild mushrooms, Mahua, and Sal leaves. Bamboo Artisan work offers year-round employment within the village, within women as primary livelihood. Considering their constraint in livelihood and availability of free time, beekeeping presents a potential opportunity for the villagers to engage in alongside their existing livelihoods. They can take care of their beehives during their spare time and continue with both Bamboo Artisan work and beekeeping.

### COMMUNITY NEEDS AND PARTICIPATION

Around 70% of the villagers in Guabehera village express a willingness to engage in beekeeping. Among them, approximately 27 individuals (54%) have a "wadi" in their homes, consisting of various flowering and fruiting plants. This indicates the actual potential for beekeeping in the village due to the availability of suitable flora. The villagers are interested in beekeeping as it offers opportunities for income generation and serves as a new livelihood experiment. However, about 30% of the villagers do not wish to pursue beekeeping. Among this group, 16% have a "wadi" and possess the potential for beekeeping, but they choose not to pursue it due to a lack of knowledge and fear associated with beekeeping.



In Baniadhar village, a majority of the people express an interest in beekeeping and have various needs related to it. They emphasize the importance of training as their first priority to acquire knowledge about beekeeping. Additionally, they seek subsidies to initiate their beekeeping livelihood, as they prefer not to take personal financial risks. The availability of a market for selling their products is also a crucial requirement. Lastly, they express a need for loans to expand their beekeeping activities.

### CONCLUSION

The feasibility study conducted in Udala and Badasahi blocks of Mayurbhanj District, Odisha, focused on understanding the current status of honey bee livelihood, analyzing market availability and benefits, and developing strategies for enhancing productivity. The study highlighted the significance of wild honey collection among Lodha tribes in Baniadhar and Kashikundala villages, along with other livelihood activities. Challenges faced by wild honey collectors, such as safety risks and low market prices, were identified. The need for education, training, market access, and safety measures was emphasized to promote sustainable honey bee livelihoods. In Guabehera village, potential for beekeeping alongside existing livelihoods was observed, with a majority expressing interest. Knowledge gaps and fear hindered participation in beekeeping. The study recommended interventions such as training, subsidies, market access, and loans to support beekeeping as a sustainable livelihood option. Addressing education, safety, and market knowledge emerged as crucial factors in promoting sustainable honey bee livelihoods in the studied villages.





## WAY FORWARD

- Implement training programs to educate wild honey collectors and aspiring beekeepers about best practices in honey production, beekeeping techniques, safety protocols, and quality control. This will enhance their skills and knowledge, leading to increased productivity and preparedness for the market.
- Create farmer producer organizations (FPOs) or beekeeping cooperatives to facilitate collaboration, knowledge sharing, and market access for honey bee livelihoods. These platforms will enable collective action, resource sharing, and advocacy to benefit the beekeeping community.
- Forge partnerships with local businesses, retailers, and exporters to establish market linkages for honey bee products. Encourage value addition through processing, packaging, and branding, thereby improving product quality and attracting higher prices in the market.
- Invest in essential infrastructure, such as honey processing units, storage facilities, and transportation networks, to ensure proper handling and preservation of honey bee products. Promote the adoption of modern beekeeping technologies and equipment to enhance efficiency and productivity.
- Facilitate access to credit, loans, and subsidies to assist beekeepers in acquiring necessary equipment, inputs, and infrastructure. By overcoming financial barriers, beekeepers can invest in their livelihoods and experience sustainable growth.

Implementing these measures will strengthen the honey bee livelihood sector, fostering sustainable income generation, conservation of honey bee populations, and improved livelihood opportunities for wild honey collectors and beekeepers in the studied villages.

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