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CASE STUDY

Entrepreneurial Aspects of Bee Keeping: A Case Study in Tripura

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ABSTRACT

The present study explores the prospects of beekeeping and its probable constraints and opportunity as an Entrepreneurial activity in three districts of Tripura viz. West Tripura, North Tripura & South Tripura from August 2021 to March 2022. A semi-structured interview schedule was used to select a random sample of 100 respondents from three districts for the study. The paper mainly focused on the constraints of beekeeping as an entrepreneurial activity. The study identifies the major problems of Bee Keeping for Entrepreneurial activity which include the usage of agrochemical products on the crops, lack of honey processing plants, no buyers of bee wax, & pest & predators. The identified problems need to be focused on at the policy level to support the sector, in the long run, to enhance entrepreneurship opportunities of beekeeping in Tripura.

HIGHLIGHTS

- Beekeeping has been a profitable business for small farmers.
- Basic awareness and know-how for the new farmers are not properly communicated.
- The climate change is one of the prominent growth factors beekeeping.

Keywords: Constraints, Potentials, Prospects, Beekeeping, Entrepreneurship

Tripura is becoming a major honey producer in North-East India, and it is also creating jobs for the unemployed. *Khadi* and Village Industry (KVIC) established a honey processing unit in Tripura in 2015. The honey production unit is outfitted with the most up-to-date processing equipment in order to improve product quality. The government has set a new goal of training farmers to start beekeeping in order to increase honey production. Around 2000 people have been trained in beekeeping by KVIC in various villages across Tripura, India. KVIC are also planning to train 700 additional farmers in Tripura. According to KVIC, there are only 400 farmers from whom they collect honey, after which they process it and market it. Honey bee species used by Tripura bee keepers are *Apiscerana indica***.** Farmers were also provided with Italian species of bees by KHADI & KVIC but beekeepers believe that due to climatic situation it couldn't survive. Best season for bees to collect honey is commonly between May to August due to the season of Mango & Litchi. The Bee keepers believed that Bees collect honey mostly during winters. Size of bee hive box provided by KHADI & KVIC to the Tripura beekeepers are 16" wide by 19 7/8" long. First two bee hive boxes were given free including colonies to the beekeepers, further if beekeeper wants to extend the box number 1 box charges 3000 including bee colony. One box can hold upto 8-9 kg of Honey, & in seasonal time it takes one & half month to get full, in off season

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they don't extract honey because of the survival of bees in hive. Each bee hive box has two chambers *viz.* Broad chamber and Super chamber**.** Broad chamber is mainly used by bees to lay eggs, & also for honey storage, & Super chamber is mainly used for storing honey. Life span of a queen bee is 2-3 years, & normal worker bees which are also known as drone can survive only 50-60 days. Bees can travel upto 1-2 kms in search of Honey for 2 to 3 times in a day for collection of honey.

REVIEW OF LITERATURE

According to Asrani *et al.* (2007), the most important enablers for beekeeping, according to respondents, were economic enablers, followed by physical, health-related, and agricultural enablers. The most significant constraints faced by respondents were technical. Verma *et al.* (2008) described the importance of indigenous beekeeping integrated with the people's prevailing customs and socioeconomic situation. According to Moniruzzaman *et al.* (2009), a study should be conducted to increase beekeeping awareness and training in rural areas of Bangladesh. As the cost of colony is prohibitively high for small, marginal farmers and landless people, the Bangladesh Rural Development Board (BRDB) or non-governmental organizations (NGOs) initiated a colony division project. According to the findings *of* Popa *et al.* (2011), beekeepers' social capital and ability to acquire current technology are two of the most important sources of opportunity that impact the formation of new and profitable beekeeping businesses. The report of Sivaram, (2012) examined the region's present situation of organic beekeeping and found that a lack of collaboration exists between beekeeping research and development organizations and universities in South Asia. According to Agrawal, (2014) reports, the informal sector accounts for up to 70% of India's honey and bees wax market. Honey from India has a sizable export market. The potential export market can be exploited by using sophisticated collecting, storage, beekeeping equipment, honey processing plants, and bottling technologies. The issue is one of producing high-quality honey. A buyer's perspective is that high-quality honey is crucial. However, India, he claims, is deficient in this area. There is a pressing need to consider how to encourage high-quality production while also expanding the export market. According to the report of Thakur, (2014), beekeeping is a successful venture that requires little cash and competent labour and yields a high return when compared to other poverty-reduction initiatives. Nonetheless, as an economic activity, beekeeping can play an important part in rural development. According to the findings of Dalio (2015) study, the majority of beekeepers have difficulties due to a lack of knowledge about bee management technologies and related skills. In Punjab's Mansa district, this modest cottage business is still in its infancy. The study of Taker *et al.* (2016) in Satjalia Island, Indian Sundarban Delta showed thatas compared to other businesses, production costs are low and demand is always high and it is much safer than traditional honey harvesting Kishan Tej *et al.* (2017) *r*eported that the effect of pesticides on honeybee should be understood by the farmer so the beekeeper will be forewarned by the farmer before spraying. Sharma *et al.* (2018) identified different factors affecting adoption of beekeeping and associated technologies in Kamrup district, Assam and found that beekeepers from the different areas have major constraints like lack of equipment and pest and predator attack. According to Anandhy *et al.* (2019) findings of the survey, all beekeepers exhibited a high level of overall entrepreneurial potential. The findings will aid in the implementation of appropriate training programmes for beekeepers by beekeeping agencies, as well as analyzing and improving on the strengths and weaknesses of entrepreneurs. The findings of Akter *et al.* (2019) study revealed that major constraints, such as colony inspection and apiary cleaning issues, low levels of technology used, honey bee pests and enemies issues, and a lack of training and training institutions, all of which were primarily related to skill gaps in managing honey bees, will be resolved, which will be a good reward for honey bee product productions. Schouten (2020) identified factors influencing beekeepers' income, productivity, and welfare in developing countries and interventions that focus on beekeeper welfare and strive to improve capacity through long-term outcome-based training and mentorship programmes which may help to overcome present hurdles to effective beekeeping development in low and middle-income countries. According to Singh *et al.* (2021) findings, beekeeping could be a source of income for rural residents, particularly unemployed young. It

may also help farmers, particularly marginal and small farmers, supplement their family income. Beekeeping is a good choice for self-employment because it requires little upfront investment, yields a high return on investment, and is less technical and labour intensive than other agricultural activities.

From above in-depth studies of the articles it's found that India is 6th largest producer of honey whereas Punjab found to be top honey producing state. Tripura's honey production found to be lowest in north-east. Moreover, farmers of Tripura not taking honey production as a primary source of income. Limited number of studies has been noticed from North-east & Tripura region. Farmers of Tripura are mainly concerned with traditional farming practices. & very reluctant to new adaptation such as honey production. Mostly farmers are focused with rubber, bamboo, Fishes, Flower nurseries, Fruits, paddies, Vegetables, etc. There are very limited Information regarding this study of beekeeping constraints, opportunities as an entrepreneurship activity in Tripura. With the above back drop, the present study focuses on the following objectives —

- To find out the constraints faced for beekeeping as farming
- To study the Potential opportunities of beekeeping as an entrepreneurial activity at Tripura

METHODOLOGY

Types of Research

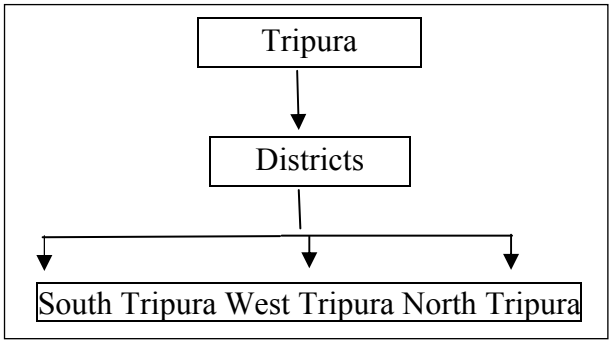
The research is based on both qualitative and quantitative, for qualitative research the information are gathered by interviewing the respondents in order to understand constraints faced by the farmers of Beekeepers as entrepreneurial activities. The quantitative research was used to analyze the management & other information related to their Beekeeping procedures.

Data collection

The primary data is collected from the Beekeepers of selected three districts of Tripura. The data was collected by incorporating semi structured interview schedule.

Sampling

Three districts of Tripura viz. South, North and West Tripura were selected purposively for the study. A total of 100 respondents from 3 districts of Tripura were selected randomly.



Data Analysis Technique

The quantitative data were collected from the survey with questionnaire, interview & were analyzed through descriptive statistical tools. The descriptive statistical technique contains simple average, percentage, tabulation, graphs in SPSS. Quantitative information was collected by means of interview.

RESULTS

The result from the table 1 showed that 94% beekeepers are male where as 6% beekeepers are only female. It has been seen that females are showing less interest in beekeeping due to fear. The result in table 1 showed that there are 51% beekeepers who are in the age between 31-40 & 33% respondents are age between 41-50 & 11% respondents are in age between 20-30, whereas 5% are in the age above 51. The results in the table 1 showed 78% beekeepers belongs to the middle size family which member are 4-6 person, & 16% respondents says they belongs to small family size which members are up to 3 people. 6% respondents belong to large family which includes members more than 7 or more people. The results in the table 1 showed 52% of the respondents having beekeeping medium experience from 6-15 years, where 33% respondents having lower experience upto 5 years, whereas 15% respondents having experience of above 16 years. The results in the table 1 showed 31% beekeepers are Graduate, where 26% beekeepers are having educational background upto secondary education, & 22% beekeepers having educational background upto primary education,

whereas 21% beekeepers having educational qualification up to higher secondary. The results in the table 1 showed 79% beekeepers having low annual income from bee keeping upto 10,000 rupees, whereas only 18% beekeeping has high annual income from beekeeping above 31,000 thousands & 3 beekeeping having medium annual income beekeeping between 11,000-30,000. The results in the table 1 showed 77% beekeepers have upto low 10 boxes of bee hives, & 14% of beekeepers have beehives above 26 boxes. Whereas 9% of beekeepers have medium upto 11-25 boxes.

The results from table 3 major constraints faced by bee farmers are pests & predators where all the 100% respondents reported it, whereas 80% responded stated that usage of chemicals like fertilizer, pesticides on crops major issue. 67% of respondents stated processing of honey is major issue because only one processing factory is there in Tripura. And 60% respondents stated there are lack of Hive manufacturers in Tripura only suppliers are KHADI & KVIC.

The identification and evolution of opportunities is what entrepreneurship is all about. It also opens up

Table 1: Socio-economic profile of the bee keepers

Socio-economic Variables	Classes	Frequency (Percentage)
Gender	Male	94 (94)
	Female	6(6)
Age	20-30	11 (11.00)
	31-40	51 (51.00)
	41-50	33 (33.00)
	51 Above	5 (5.00)
Family Size (person)		
	Small (up to 3)	16 (16.00)
	Medium (4-6)	78 (78.00)
	Large (Above 7)	6 (6.00)
Farming Experience (years)		
	Low Experience (up to 5)	33 (33.00)
	Medium (6-15)	52 (52.00)
	High (Above 16 years)	15 (15.00)
Annual Income		
	Low (up to 10,000)	79 (79.00)
	Medium (11,000-30,000)	3 (3.00)
	High (Above 31,000)	18 (18.00)
Number of Bee hive boxes		
	Low (up to 10 Boxes)	77 (77.00)
	Medium (11-25) Boxes	9 (9.00)
	High (Above 26 boxes)	14 (14.00)

Table 2: Perceived constraints of the bee Keepers

Perceived constraints	Agree	Disagree	Neutral	Strongly Agree	Strongly disagree
Unavailability of Hive manufacturers	28 (28.00)	12 (12.00)	11 (11.00)	44 (44.00)	5 (5.00)
Lack of family Support	0	14 (14.00)	1 (1.00)	0	85 (85.00)
Coordination gap between the buyer of the bee wax	15 (15.00)	7 (7.00)	25 (25.00)	43 (43.00)	10 (10.00)
Lack of Honey Processing Plant	23 (23.00)	18 (18.00)	17 (17.00)	47 (47.00)	4 (4.00)
Extraction of Honey	0	3 (3.00)	0	1 (1.00)	96 (96.00)

Fig. 1: Bee Hive Box

Fig. 2: Broad Chamber

Fig. 3: Super Chamber

new options and opportunities. Individual or group enterprise & projects were fostered, supervised, and regulated in various ways by the national government for planned economic advancement.

Table 3: Constraints Faced by bee keepers

Constraints Faced by Beekeepers	Frequency	Percentage
(i) Unavailability of Hive Manufacturers	60	60.00
(ii) Processing of Honey	67	67.00
(iii) Application of chemicals on crops	80	80.00
(iv) Pests & Predators	100	100.00

The basic concept was that people with limited financial resources or managerial experience may participate and start small firms, which would be good tools for increasing entrepreneurship across the country. Agro-based industries such as KHADI and KVIC offer beekeepers an excellent opportunity for local entrepreneurship and employment generation, which improves their livelihood and economic conditions. Beekeeping is one of the best examples of entrepreneurship and employment generation, resource utilisation, income generation, and gradual and peaceful change.

Table 4: Types of harm identified by major pests and predators

Pests and Predator	Season of Incidence
Ants, Mite, Lizards	Year round
Birds	April-August
Hive Beetle	May-August
Fungus	Rainy Season

From the table 4 which say the factor influences entrepreneurship, it has been found that 45% of respondent sees financial benefits & Sell of honey influences them in entrepreneurial activity, & 41% respondents said strategy to export bees & colonies are also the reason for entrepreneurial activity.

Table 5: Perceptions impeded their progress in Bee keeping entrepreneurship

Variable	Frequency (Percentage)
Public Unawareness (Usage of pesticides)	80 (80.00)
Location Factor	72 (72.00)
Processing of Honey (lack of factory)	65 (65.00)

From the table 6 which says the factor hinder bee keeping entrepreneurship the results show 80% of respondents said public awareness is the reason, where 72% believes Location is one of the prime factors, whereas 65% respondents said due to lack of honey processing factory is one of the reasons.

Table 6: Factor influence Entrepreneurship

Variable	Frequency (Percentage)
Financial Benefits	45 (45.00)
Sell of Honey	45 (45.00)
Strategy to export bees	41 (41.00)

CONCLUSION

From this study, it can be concluded that Beekeeping as an entrepreneurship has very good potential in Tripura if anyone taking it as primary source of income & investing time. The major factors which are constraints as an entrepreneurial activity in Tripura are lack of public awareness which is usage of pesticides on crops, lack of honey processing plants, lack of hive manufacturers & pests predators like Mites, ants, birds, hive beetle, lizards, and fungus. To take beekeeping as primary source of income beekeepers needs to install more number of bee hives. As the usage of agro-chemical products are increased now a day's beekeepers can start

farming of flower nursery those who are having large number of land & start aware people about the side effects of access usage of chemicals on crops. To get rid from the constraint of pests &predators, bee keepers can take professional training.

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