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### RESEARCH ARTICLE

#### PROBLEMS AND PROSPECTS OF BEE KEEPING AT KHATARSHNONG IN MEGHALAYA.

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#### Abstract

The main focus of this qualitative study is to examine the problems and prospects of beekeeping at Khatarshnong in Meghalaya, because this enterprise is working more in these areas than others parts of Meghalaya. Beekeeping plays an important role in the development of the people of Khatarshnong. It is an interesting hobby, an ideal, eco-friendly, agro – based subsidiary enterprise, providing supplementary and a major source of income to the farmers. It provide sustainable livelihood to the rural people, including the landless and women.

The susceptibility of honey bees to different diseases, pesticide hazards and marketing of bee products were found to be major limiting factors in the prospects of beekeeping. However, even though beekeeping practices at Khatarshnong is more traditional and affected by several constraints, high motivation of the beekeepers, their traditional knowledge, and availability of indigenous tree, flowers species as bee forage and participation of all family members in beekeeping activities were among the aspects that encourage Beekeeping in the area.

Since, the beekeepers wants to upgrade their business; technical, institutional and long term credit support from the government, could result in a sustainable way of honey production.

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#### Introduction:-

Beekeeping is the maintenance of honey bee colonies, commonly in hives, by humans. According to Verma (1990), Beekeeping is a profitable enterprise. There is no negative impact of beekeeping on the environment. Saha (1990), many organizations have already undertaken beekeeping programme as a good weapon for self-employment and poverty reduction for the rural people.

Verma (1990), Honeybees are of great economic importance because they not only produce honey and bees wax but also act as primary pollinating agents of many agricultural and horticultural crops. It is due to pollination that crop yield increases, quality of seed and fruit improves, and heterocyst can be exploited. Beekeeping can play a vital role in sustainable agricultural development as it increases resource without changing environmental balance. As a cottage industry, it is a source of income of the rural people. Beekeeping is one of the important components of integrated rural development programmes

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Bees make honey. Since ancient times, people have enjoyed its sweet taste. To get it, people searched for a hive of wild bees. Then they stole the honey. Later, people figured out it would be easier if they kept a hive of bees near their house. The honey would always be at hand. Eventually, people became beekeepers.

The main uses of honey are in cooking, baking, as a spread on breads and as an addition to various beverages such as tea and as a sweetener in commercial beverages. It is also an antiseptic and is applied to wounds and burns with beneficial results. A number of small scale industries depend upon bees and bee products. Honey and bees products are used in several industries which are under; pharmaceuticals, meat packing, bees wax industries, bee venom, royal jelly, bee nurseries, bee equipment and hives etc. There is considerable demand for the honey.

After independence Government of India took a policy decision to revive various traditional industries and an All India Khadi and Village Industries Board was constituted to undertake this work. The task of development of beekeeping industry was also entrusted to this Board. This Board was later reconstituted as Khadi and Village Industries Commission a statutory body of Ministry of Industries. It was only after the establishment of KVIC at Central level and Khadi and Village Industries Boards at State level that beekeeping industry in many states of the country received serious attention for its development

However, the attention given to the Beekeeper of Khatarshnong was not satisfactory. Only the registered institutions or the Cooperative Societies established prior to the establishment of the State Boards were taken on the list of directly aided institutions by the KVIC. But the beekeepers in the region are unorganized and didn't benefit much from the sector. Beekeeping has been left for nature with little attempts to support it with technological package to improve its production and productivity.

#### **Background of the study:-**

Khatarshnong etymologically means 12 villages (khatar means twelve while shnong means villages). Khatarshnong is located in the East Khasi Hills district of Meghalaya about 60 kilometers to the south of the state capital Shillong. The area is starkly recognizable as a vulnerable and marginalized area brought about by the difficulty of the terrain, landlessness and poor public infrastructure. Road, communication, health and educational infrastructures are extremely poor and on the larger part villages remain cut off and deprived of basic services. Poverty is rampant with chronic food insecurity and with significant section of the households being landless and almost entirely dependent on jhum cultivation in the mountain slopes the means of livelihood barely allow a subsistence living.

#### **Methodology of the study:-**

##### **Objectives of the study:-**

##### **General objective:-**

To study the problems and prospects of bee keeping at Khatarshnong in Meghalaya

##### **Specific objectives:-**

1. To study the history of bee keeping at Khatarshnong.
2. To find out the people involved in bee keeping.
3. To know the material required for production.
4. To study the factors contributing to increase or decrease of production.
5. To study the marketing processes.
6. To know the people involved in marketing.
7. To study the price of honey and other related.

The study was conducted in seven villages of Khatarshnong : East Khasi Hills district Meghalaya namely: Dewlieh, Laitmawsiang, Khrang, Pdei, Puhbsein, Thangtim and War war.

Purposive sampling technique was applied for selecting study areas and random sampling technique was applied for choosing sample units. There were about 400 to 500 beekeepers at Khatarshnong who earn from bee keeping. Thirty-two household of the beekeepers were selected from these seven villages for the study. Two firms at Sohra were also interviewed as most of the bee keepers had mentioned that they usually sell their product to them. All of them were interviewed to collect necessary data for the study.

Data were collected through face-to-face interview method by using interview schedule. This has given an opportunity to do in-depth interview with individuals and further leads to group discussion. The data supplied by the beekeepers were recorded later. Data were analysed with a view to achieve the objectives of the study.

### **Findings and observation:-**

#### **History of bee keeping in Khatarshnong:-**

Bee keeping is part of the region's tradition, at first it was done for self-consumption but later it changed to be their means of livelihood. It contributes to the income of the bee keepers especially at time of difficulties, seeing this some people too got inspired and started to keep bees.

It is also believed that the people are keeping bees in order to get company and feel secure with the bees around them. They consider the bees to be their friend and they believe that the bees understand their language.

Some people are keeping bees for the sake of imitating others who keep them and with the intention to get to eat for themselves. However later, they found it profitable. Therefore, they start increasing the bee hives to be able to sell in the market.

According to Bah El Khongain, an inhabitant of Kshaid village said that, there are reasons behind keeping bee. To him bee keeping is part of the Khatarshnong tradition because there is a believe that:

1. Bees are God's messengers; bee understands human language and man too can communicate with the bee, they give messages to the bee keepers before good or bad things happen to them.
2. Bee sting is a great medicine; when a person is bitten by the bee, the sting that it left contain healthy medicine it is just like an injection which make the person healthy and be able to live longer.
3. Bee contributes to human survival; bee keepers can eat the honey and at the same time can sell and earn out of it.

#### **Bee keepers status and means of livelihood:-**

Bee keepers are the poor and landless farmers of this region who are unorganized in marketing their products but have got their own traditional skills and know ledges in keeping bees.

##### **a. Occupational status of the beekeepers:-**

In the study areas, 100 per cent of the beekeepers have taken it as one of their main occupations. Besides this they engaged in broom plantation and bamboo craft in the off-season of honey production about five months from June to October and during their free time. The bee keepers spent lots of time and energy in taking care of the bees, especially in the winter season they have to stay in the jungle, preparing and cleaning the burrows (holes in the trees which are made by man for the bees and the queen to settle before they are captured and placed in the bee hives). Later they need to mind the bees till it settles down.

##### **b. Educational status of the beekeepers:-**Most of the beekeepers are illiterate

##### **c. Land holding status of the beekeepers:-**Landless people were engaged in beekeeping activities and do not have their own land for cultivation.

#### **People involve in beekeeping:-**

Male members of the family are found to be more interested and involved in bee keeping. The fathers of the families are more involved in it with the helping hand of their sons. There are rare cases that ladies are involve in taking care of the bee hives or going to the jungle. Even if they involve they take up only light work like guarding the bee from flying away, throwing sand or mud on it. They also help their husband in cleaning, separating the honey bee at home.

#### **Material require for production:-**

In order to start bee keeping and marketing the honey certain materials are needed, they are as follows:

##### **The queen (bee):-**

Most of the bee keepers inherit the bees from their forefathers , but there are cases that the bees flew away or died ,therefore the bee keepers need to search for the queen from the jungle and they have to wait till the coming of winter season. There are also some people who never keep bees but wanted to start bee keeping, most of these aspirants got the queen from their neighbors or friends free of cost but some buy at 200-300 INR per queen.

**Bee hives:-**

In order to start bee keeping, the bee keepers need to get the bee- hives. Bee hives can be self-made or bought from the market. Those beekeepers, who made the bee hives by themselves, have to buy the wood approximately at 500INR of a medium size. But there are also some who buy from others at the rate of 800- 900 INR. It was discovered that the bee hives made out of jack fruit last longer it can last more than ten to twenty years, but the other ordinary trees will last only six to seven years. Though, wooden bee hives are commonly used because it is less expensive. Cement bee hives are most preferred by the beekeepers in the study areas because it is more lasting and net return was higher from cement bee hives.

On an average the bee keepers have around 20 to 35 bee hives each. Whereas the minimum number of bee hives is 6 and maximum are 80. At the starting period all those who inherit bee keeping as a profession from their fathers have got approximately 30 to 60 bee hives, but later in most cases the number decreased from time to time mainly due to environmental factors. Half of the number of beekeepers who started this enterprise by themselves, started with one to five hives.

**Containers:-**

To take out the honey bee the bee keepers need a knife or a stick made out of bamboo. They collect the honey bee in a basin/ bucket or a pot, take out the comb and separate the honey from the starch and larva. Then, the bee keepers keep the honey bee in the tin (mustard oil) which they have to buy at the rate of 30 INR each. There are also cases that the bee keepers filter the honey bee in order to separate the wax from the honey if they get order from the customer. They keep the honey in a second hand bottle which they buy from the market at 5 INR each. Usually the bee keeper threw away the wax because they don't know where to market it.

Each bee keeper harvest 40 liters (on an average) from two bee hives in two harvest seasons – spring and autumn. On an average the bee keepers produce 4000 liters a year.

The most favorable season for honey production is winter, because of natural forest flowers and fruits that are found in abundance. Bees collect honey-producing substance (nectar) from the flowers of mustard, oranges and other wild plants and flowers. Winter honey is also considered to be of high quality and costlier as compared to the spring honey.

**Problems in beekeeping and its solutions:-**

The bee keepers are facing many problems they however don't want to give up; instead they have a strong desire to increase the product. Here are certain problems and factors that contribute towards the increase or decrease of the product.

**No organized marketing facilities:-**

The bee keepers pack the honey bee in the tin (mustard oil) which contains around 23 kg. Sometime they filter the honey and keep it in the small bottle.

Even though the bee keepers are hardworking , their income is less due to lack of proper marketing facilities and no proper means of transportation. The bee keepers have to carry the honey containers all by themselves. They have to go through the steep hills and slippery path to reach the nearby market. In spite of all these problem and hard work, the remuneration in terms of honey price is not very encouraging.

It is indeed an irony of fate that these bee keepers who already continue to suffer from multiple deprivation and exploitations are obliged to sell their products through middle man, for want of communication facilities and incurring substantial losses in the process as they could have earn more if they had direct access to the market.

**No proper pricing:-**

The price of the honey bee varies from time to time; it is not stable or fixed. It depends on the decision of the five six middle man in Sohra and two firms. The middle men bought from the bee keepers at a low rate. The range of the honey is from 120- 220 INR per liter. The consumers soon purchase this honey at higher prices from the market (middle men).

**Roles played by middle men and firms:-**

The middle men are playing an exploitive role in the marketing process. The middle man buys the honey from the bee keepers and sells it to other retailer in Shillong who are mainly the marwari traders and to the Bangladeshi at the border market at a rate not less than 400/500INRper liter. And the wax they collected after filtering the raw honey are being sold at the rate of 200INRper kg, whereas the bee keepers largely wasted the wax due to lack of awareness of its market value.

The felt need of the bee keepers of Khatarshnong is to be able to avail to organized honey market, where the rate of the honey is fixed and profitable.

Bee keeping is a good means of self-employment and poverty reduction for the rural people. However till today, the bee keepers were not well organize and still lack proper marketing facilities, bee keepers are not aware of systematic means of processing and labeling the honey. They are not conscious that labeling the product can help in increasing the price.

**Factors contributing to increase or decrease the product:-**

There are many factors that can contribute towards the increasing or decreasing of the honey, the following are some of the factors:

**Environmental factors:-**

Environment is the major factor that contributes towards the decreasing of the product, due to heavy rainfall the bees cannot collect the pollen; therefore some dies in the bee hives itself. The bees find it difficult to survive if it is too hot or too cold. Therefore human intervention can help the bees to survive by giving sugar water to the bee during the rainy season, however some bee keepers' mentioned that giving sugar water to the bee affects bee's health.

The other reason which contributes towards the decrease in the production is the scarcity of flowers because of the degradation of forest and the extinction of most of the favorite flowers of the bee in hilly areas; therefore it takes time for the bees to fill the honey.

The pollution and smell that comes out from the cement factory also contribute to sicknesses and unhealthy environment for the bees. The used of different cosmetic and washing soap affect the bee when it drinks water from that place.

The other factor that contributes towards the decreasing of the bees is that the wild animals like the bear destroy the bee hives and eat up the bees; there are also cases that the ants came to disturb the bees by eating the honey. In this circumstance human intervention is needed to chase the ants. In these cases the bee keepers usually throws turmeric in the honey bee.

The flying away of the bees from the bee hives too contribute towards the decreasing of the product, the bees fly away many a time. Most of the time the bee keepers don't see where it flies because the bee hives is far away from their houses. In some cases they stop the bees from flying away by throwing sand or soil or pebbles on it.

Broom cultivation also create problem to the bees because it cannot produce any flower to feed the bees. In the places where broom are planted no other trees, plants and flowers can grow. Therefore this compels the bees to fly away tofaraway places in search of flowers.

**Financial factors:-**

There are some problems in beekeeping, which were reported by the beekeepers. Initial cost of beekeeping is high, if a person wants to start this enterprise with five hives, then it requires about 5000 INR approximately just for a bee hives. For this reason some assistance is needed for the poor landless bee keepers of Khatarshnong.

**Beekeeping – a prospective enterprise in Khatarshnong:-**

There is a wide scope of bee keeping at Khatarshnong, traditionally they started with their own knowledges and skills. By utilizing these skills together with the modern knowledge and assistance mainly in the marketing processes like processing and labeling will widen the scope of bee keeping at Khatarshnong.If the bee keepers are being assisted in marketing the product and help to tackle some of the problem that they are facing,the bee keepers

will be more eager to retain hives. As a result production of honey will be increased in this region as beekeeping has a great role in developing the economy of Khatarshnong.

#### **Potentiality of beekeeping enterprise at a glance:-**

1. Weather is favorable for beekeeping at Khatarshnong.
2. There are so many nectar and pollen producing plants especially during winter season.
3. No need of land in beekeeping.
4. An illiterate person can start this enterprise even without any formal training.
5. Honey is not perishable good; it remains fresh, so farmers can easily store it.
6. Honey is nutritious food.
7. It has medicinal value.
8. Beekeeping may be complementary or substitute of reduction of poverty in the state and country.
9. It is a profitable enterprise.
10. It is an environment friendly enterprise.
11. Source of extra income, which helps to improve the standard of living.
12. Employment creation by extending the beekeeping in Khatarshnong.

#### **Recommendations:-**

Here are some recommendation which can be beneficial for the growth and progress of the bee keepers:

#### **Formation & registration of bee keeper union in the cooperative society:-**

It will be helpful to form bee keeper union and gets itself registered in the cooperative society. Registration in the society will give stable and recognized group identity to the union. So that they can easily avail to government grant, schemes or loans.

#### **Processing, labeling and pricing:-**

Pricing of the honey can be done if the union has proper processing method, filtering of the unfiltered honey in a hygienic manner and pack it in a good containers or fresh bottles not in a second hand rum or beer bottles.

The union can buy and use the bottle of different sizes according to the need and requirement of the customers. It will be good if the honey is classified in different categories. Winter honey is considered to be of high quality as compared to the spring honey. The honey can be categorized like black berries honey, oranges honey and so on as per the seasons.

The wax should also be collected and kept properly after processing and filtering. It can be packed and brand for selling in the market. Wax can be utilized in different ways, it can be used for candles as a lubricant for drawers and windows or as a wood polish. Therefore there is a good scope for wax marketing, it should not be thrown and go wasted.

Khatarshnong produce pure and good quality honey. It is a nutritious food and has got a tremendous medicinal value. However, it is not known to the people outside the region, in spite of being an exporter to some other countries like Bangladesh. The customer will not know about it, if it does not have a brand name.

Therefore, proper brand, with some introduction and good advertisement about the product is required. Prices can be labeled accordingly based on the quality that has been categorized. This will inspire and motivate the people to know about Khatarshnong honey. It will also give the customer an assurance that it is a good product.

#### **1. Marketing:-**

Advertising of the product is necessary for the success of the entrepreneurship and this can be done with the help of the mass media. Linkage of the Khatarshnong honey to other big and well known honey companies of the region, country or of the world is also necessary.

#### **2. Organizing a team to manage the processing and labeling:-**

Awareness programme should be conducted for the bee keepers, emphasizing on the need of proper processing and labeling of the honey that they produce. Later, motivates them to organize a team to take charge of the said matter.

Facilitate timely meetings, mutual decision making and proper record maintenance to make the beekeepers feel that they all are masters of their team and not only the few selected members.

Facilitate means for the bee keepers union to see the transparency and accountability of the team.

The executive members of the team may not need to be permanent; it will be good if it will be in rotation of those who are capable of handling it.

Identifying a space for the storage of honey and selection of few representatives to manage the work at the initial stage is required. Agreement should be made by all members to store their honey in the union's storage house with an agreeable price.

The bee keepers are poor they need money; therefore it will be difficult for them to wait long. The honey price can be paid to them by their own share money. Later, after branding and exporting the product elsewhere the union can earn and make profit.

At first the managing team can take over the work alone however slowly when it grows bigger, everyone can be fully employed and work together as a company.

### **3. Exposures and training:-**

It will be of help to the bee keepers if they are link with the apiculture experts, for instance two queens cannot stay together. Therefore, providing the bee keepers with the knowledge and skills of separating the queens and put them in different bee hives is important.

Awareness of the problems or diseases of the bees and reason of its death or flying away is necessary, in order to prevent the bees from dying or flying away and to be able to give necessary treatment if it falls sick.

### **4. Protection of natural environment:-**

Environment protection and promotion of natural forest will contribute towards the better production of honey in the region. Awareness on deforestation, broom cultivation and its impact on the honey industry should be conducted. Engagement with different department like forest department on afforestation, agriculture, horticulture and floriculture will be useful for the union of bee keepers. This could contribute not only to the high production of honey but also can act as another source of earning.

Networking with polluting industries like cement factories can be of help to the bee keepers. As there can be some ways to create a good environment for the bees.

### **Conclusion:-**

Beekeeping is a profitable enterprise. There is no negative impact of beekeeping on the environment. Therefore beekeeping should be encouraged and good honey marketing facilities should be promoted by the government and non government organization; so that no individuals middle man or private firms can take advantage of the bee keepers. The union should link themselves to different agencies for accessing resources and supports like the block department, Khadi commission, forest department, banks and other agencies.

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