

ROLE OF APIARY IN RURAL EMPLOYMENT GENERATION AND ECOLOGICAL BALANCE IN KANYAKUMARI DISTRICT (TAMIL NADU, INDIA)

K. Robinson*

Department of Commerce, Nesamony Memorial Christian College, Marthandam, Kanyakumari District, Tamil Nadu, South India

Abstract. Beekeeping requires very little inputs. A bee box is the only essential requirement to start the industry. The output is comparatively quite high. For the illiterate poor in remote areas of the country, this could be an ideal occupation besides their traditional agriculture and forest related main occupations. The present study attempts to analyze the role of *Khadi* and Village Industries Commission in developing Bee-Keeping Industry through Rural employment programme in Kanyakumari District of Tamil Nadu. The study shows that there is positive correlation between Income and employment of the beneficiaries of different works of the rural employment Generation programme. There is strong mutual relationship between Honey bees and plants. Plants an important role in the survival of the bee population and the maintenance of plant species ultimately result in ecological balance.

Keywords: Bee keeping, Honey Bees, Employment Generation, Ecologicalbalance.

Introduction

Honey and Honey bees have a long history in India. Honey bees evolved in this region millions of years ago and produced honey from nectars of flowering plants that abounded in rich forests all over the country. Honey was the first sweet food tasted by the ancient Indian living in these forests. With the development of civilization, honey acquired status in the lives of the ancient Indians as a magical substance that controlled the fertility of women, cattle and their crops.

At present there are a number of schemes in beekeeping. Research and development training programmes are taken up by the Central Bee Research and Training Institute, Pune and *Khadi* and Village Industries Commission (KVIC), Mumbai. The Beekeeping Industry comes under the category of Agro and food industry of KVIC. The industry is very important in terms of productivity, employment and Income generation.

Bee keeping constitutes a resource of sustainable income generation for the rural and tribal population. It can prevent the movement of rural population for urban areas for employment opportunities and reduce pressures for water, electricity, housing and other facilities in cities and industrial townships. It provides them valuable nutrition in the form of honey, protein rich pollen and brood. Bee products also constitute important ingredients of folk and traditional medicine. Apiculture has been associated with agriculture and horticulture and, in fact, contributes significantly to the ecological balance of the region including the local cultivated and natural flora and fauna.

There are four species of bees found in India, viz. *Apis cerana*, *Apis dorsata*, *Apis flora* and *Apis trigona*. Among these, the highest honey producing species is *Apis dorsata*.

Honey is the sweet liquid produced by honey bees from nectars and other sweet substances of plants by addition of their

digestive enzymes and by ripening the result mixture. Honey is thus a product of interaction of honey bee a highly advanced insect group and plants, mainly the nectar producing flowering plant groups. There is a mutual relationship between the bees and flowering plants. Bees depend upon the plants for their existence and growth. Where as flowering plants depend on the insects for entomophilous pollination that results in genetic variation, evolution of new plant species and maintenance of the sustainability of flowering plants. Over 50 million hectares of crops are benefited by bee pollination. Among the crops that give increased yield due to pollination services by bees are oilseeds, pulses, vegetables and fruit crops.

The study of Shetty (1963) shows that in mehsana the small scale industries (SSIs) are playing an important role in employment generation. The employment per SSI unit has increased over the years, which is contrary to the trend at national level. Therefore, while making any change in the industrial policy, the Government should give adequate weight to the fact that the SSIs play an important role in employment generation of industries in the country.

According to Palanichamy (1978) & Carl Riskin (1980) Beekeeping as a business points out that beekeeping is important to increase crop yield and cross pollination. It gives pure and natural source of honey, which has a variety of uses. Besides, it is one of the remunerative subsidiary occupations for most of our farmers.

Dube in his article (1980) money from honey points out that the agro forestry experts claim that in our country, semi arid zones pose high potential for honey production with diverse environment and inexhaustible floral resources from natural vegetation and cultivated crops. India can easily support million of bee colonies, adopting improved technology. Jaiswal (1982) and Minocho (1983) explains that the cost of employment in rural industries is very low as compared to the cost of employment in large and small industries.

The new beekeeping industry had generated employment and subsidiary income to beekeepers and protected the beneficiary insects from destruction by honey hunters. It is an ideal activity for development as subsidiary occupation in apiculture is providing supplementary income to a large number of rural, hilly and tribal population (Zwanul Islam, 1986).

Chikara (1989) reported that a considerable level of employment was generated and the highest increase was observed in processing of cereals and pulses followed by furniture, lime stone, *Khadi* industry, carpentry. This reflects the *Khadi* and Village Industries Board (KVIB) has great potential for generating employment through financing rural cottage industries.

The past studies related to the *Khadi* and Village Industries Commission, Rural Employment Generation Programmes, Beekeeping Enterprises, etc., are reviewed in this chapter. Based on the past studies, the present study is conducted at Kanyakumari District of Tamil Nadu.

The present study attempts to analyse the role of KVIC through Rural Employment Generation Programme (REGP) in promoting the Beekeeping industry in Kanyakumari district. It also helps to find out the role of Honey bees in increasing the yield, conservation and evolution of plant species through floral pollination.

Study Area

The present study is conducted in Kanyakumari District of Tamil Nadu State. Kanyakumari District lies at the southern most tip of peninsular India where Indian Ocean, the Arabian Sea and the Bay of Bengal embrace one another. The District is situated between $8^{\circ}8'$ - $8^{\circ}29'$ northern latitude and $76^{\circ}9'$ - $77^{\circ}41'$ eastern longitudes, occupying a total area of 1672 Sq. Km. The southern tip of the Western Ghats tapers off into the district and the terrain is a mix of hills, hilly plains and coastal plains. This small district is famous for its vast green fields, coconut groves, forest wealth and is dotted with a large number of ponds.

Kanyakumari District has the unique advantage of receiving rains during the southwest and northeast monsoons. The period of southwest monsoon is from June to September while that of northeast monsoon is from October to December. The annual rainfall ranges between 90 and 160 cm and the average is 140 cm. The total population of Kanyakumari District is 16,00,340.

The forests are highly enchanting with pleasant shoals, beautiful grass lands, panoramic valleys, top hillocks, singing streams, vast stretches of rubber plantations, valuable teak plantations and an immense treasure of medicinal plants. The Government reserve forests occupy an area of 50486 hectares.

Methodology

Primary as well as secondary data were used for analyzing the performance of the REGP under the KVIC in BeeKeeping industry. Secondary data regarding the performance of Beekeeping industry and the assistance made by the KVIC through the REGP schemes were collected from the office records of the KVIC, Mumbai and the KVIC regional office, Madurai the KVIC Chennai and Kottor Centre of Nagercoil, Beekeepers co-operative society and YMCA Marthandam, Kanyakumari District.

In order to analyse the performance and the difficulties of the beekeepers, Kanyakumari District has been selected for the primary data collection. Kanyakumari District is one of the districts of Madurai Region of the KVIC. A sample of 120 beekeepers or the beneficiaries of the REGP of the KVIC beekeeping activities were randomly selected for the interview purpose of the present study.

A pre-tested questionnaire was administered for the primary data collection.

Result and Discussion

The Total number of beekeepers in Kanyakumari District was examined with the help of figures given in table 1.

Table 1. Number of Beekeepers in Kanyakumari District

Year	No. of Beekeepers
1995-1996	18,714
1996-1997	19,339
1997-1998	19,339
1998-1999	19,785
1999-2000	20,177
2000-2001	20,177
2001-2002	20,179
2002-2003	20,188
2003-2004	20,014
2004-2005	20,743

Source : KVIC, Chennai, 2006.

Table 1 shows the number of beekeepers in Kanyakumari District during the period from 1995-96 to 2004-05. In the year, 1995-96 the number of beekeepers was 18,714 in Kanyakumari District. In the next year (1997-98) the number of beekeepers increased to 19,339. It slightly increased in the year 1999-2000 and 2000-01 (20,177) and the total Beekeepers was 20,743 in the year 2004-05.

The production of honey in Kanyakumari District is examined with the help of the figures given in Table 2.

Table 2. Production of Honey in Kanyakumari District

Year	Honey Production (lakh Kilogram)
1995-1996	186.5
1996-1997	188.4
1997-1998	148.2
1998-1999	157.2
1999-2000	219.7
2000-2001	228.9
2001-2002	229.6
2002-2003	241.5
2003-2004	237.4
2004-2005	241.3

Source : KVIC, Chennai, 2006.

Table 2 shows the production of honey in Kanyakumari District during the period from 1995-96 to 2004-05. In the year 1995-96 the production of honey was 186.5 lakh kilogram. It decreased to 148.2 lakh kilogram in 1997-1998. In the next year (1998-1999) the total production was 157.2 lakh kilogram. It slightly increased in the year 1999-2000 (219.7 lakh kilogram) and again it increased to 241.3 lakh kilogram in 2004-05. This study shows that the increase in honey production was very little over the years, that is, the total honey production increased from 188.4 lakh kilogram in 1996-97 to 241.3 lakh kilo gram in 2004-05.

Beekeeping by KVIC Federated Agencies

Vilavancode Taluk of Kanyakumari District has three major honey marketing agencies which are federated by KVIC, Madurai Region through KVIB. They are: (1) The Young Men Christian Association (YMCA), Marthandam; (2) The Beekeepers Co-operative Society, Marthandam; and (3) The Tamil Nadu *Khadi* and Village Industries Board (TANKVIC) at Thiruthuvapuram near Kuzhithurai. Of these three Honey Marketing agencies in Vilavancode Taluk, YMCA, Marthandam and the Beekeepers Co-operative Society, Marthandam were selected for the present study.

Young Men Christian Association (YMCA)

The YMCA, Marthandam was started in 1924. Its activities were carried out under the dynamic leadership of Spenser Hatch. Its activities won the appreciation of the general public. Consequently, it could open one more branch at Muzhukode in 1956. The Kanyakumari branch was started in 1978.

In the history of beekeeping, the services rendered by the YMCA are monumental. Beekeeping is one of the village industries taken up and propagated by the YMCA as early as in 1924.

Now the programmes on the development of the beekeeping industry are carried out by the secretary of regional YMCA with the direction and assistance from the National YMCA.

At the YMCA, Marthandam campus bees are reared and honey is produced in large quantities. Honey is cleaned, sealed Agricultural Marketing (AGMARK) and sold all over the country and exported to other countries also.

Table 3. Major bee plants and the plants benefiting from Honeybee pollinators

Major bee plants	Plants benefiting from honey bee pollinators
<i>Brassica</i> spp. L.	
<i>Litchi chinensis</i> Camb	
<i>Zizyphus jujuba</i> Lamk.	Asparagus, Broadbeans, Citrus,
<i>Moringa oleifera</i> Lam.	Lemon, Clove, Coconut, Coffee,
<i>Cocos nucifera</i> L.	Cotton, Cowpeas, Guava, Oil
<i>Helianthus annus</i> L.	palm, Papaya, Pears, Peppers,
<i>Engenia jambolana</i> Lamk.	Sun flower, Tephrosia, Neem
<i>Citrus</i> spp. L.	tree, Mango, Jack tree, Wild
<i>Sesamum indicum</i> DC.	Jack, Cacao, Cashew,
<i>Heavea brasiliensis</i>	Tamarindu, Banana, Palmyrah,
<i>Mangifera indica</i> Linn.	Rubber, Cucumber, Cucurbita &
<i>Azadirachta indica</i> Linn.	Forest tree
<i>Acacia planifrons</i>	

Summary and Conclusion

Beekeeping industry is a traditional industry like other village industries. Scientific and modern beekeeping is of recent origin in India. It received as impetus, particularly since the All India *Khadi* and Village. Industries Board has taken up the development on modern lines from 1953-54. It not only generated employment and subsidiary income to the people but protected the beneficiary insects like honey bee from destruction by bee hunters, urbanization and indiscriminate use of insecticides in modern agriculture.

The country has over 50 million hectares of crops that are benefited by bee pollination. Among the crops that give increased yield due to pollination services by bees are oilseeds, pulse crops, vegetables and fruits.

It is necessary to assess the existing flora wealth and study the potential and capabilities of different honeybee species. The rich flora available in abundance in rural and forest areas are not exploited fully by the Beekeeping Industry. There is a need to mobilize various resources, take up efforts of

proper resource management, utilize the traditional sciences and technologies and improve upon them taking into consideration the recent development, vast modern knowledge base created and the changing industrial environment. If these resources are exploited fully, it would create substantial national wealth. Hence the development of the Bee Keeping Industry is a vital one for the Indian economy.

While concluding, it may be said that the Rural Employment Generation programme under the KVIC in Kanyakumari district has made a positive contribution to the development of beekeeping enterprises and the generation of employment opportunities to the rural poor. Indeed, for improving the economic conditions of the rural poor, in addition to the effective planning with the cooperation of various departments, educating the poor to undertake schemes, organizing them to effectively utilize the assistance given, providing follow up service etc, are some of the steps to be taken by the functionaries.

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* Author for correspondence