

## **Sericulture an Income Generation for Farmers**

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### **Abstract**

Sericulture involvement may compel one to develop greater or lesser interaction with other households of the village. A specific kind of relationship develops, in the context of sericulture, in view of its regular labour requirements, informational exchange, and sericulture interdependency. Sericulture is one of the most labour intensive sectors, combining activities of both agriculture (sericulture) and industry. The production process involves a long chain of interdependent, specialized operations which provide a means of livelihood to a large section of the population, i.e., silkworm seed producers, farmers-cum-rearers, reelers, twistors, weavers, spinners of silk waste, traders, etc. It is practiced in about 53,814 villages all over the country. It provides employment to about 6 million people, most of them being small and marginal farmers, or tiny & household industry mainly in rural areas. This paper highlights the significant role of the sericulture industry in India.

### **Key words**

Silk, Mulberry, Sericulture, Silk Worm rearing, Cocoon harvesting, Silk reeling

### **Introduction**

India is the world's 2nd largest producer of silk and the only country in the world that produces all the five known varieties of commercial goods namely Mulberry, Tropical Tasar, Oak Tasar, Eri and Muga. Mulberry silk is depended on agricultural

activity and hence provides the farmers a great opportunity to diversify into a high value yielding crop. Mulberry silk production has 4 broad activities:

1. Mulberry plantation  
(Growing mulberry plants & harvesting leaves for feeding the silk worms )
2. Rearing Silk worm (feeding worms with mulberry leaves leading to cocoon formation, breeding for producing eggs.)
3. Reeling (Extraction of silk from the cocoon, binding & twisting of threads )
4. Weaving ( Weaving of thread into fabric)

Out of the 4 four activities mentioned above, the first two activities take place at the farm level and hence provide farmers an opportunity to diversify from conventional farming into a promising rural industry. In addition to it, reeling also provides a great homestead livelihood opportunity especially for women.

### **Origin of the Research Problem**

Sericulture is an agro based labour intensive industry providing gaining employment mostly to rural people. The economic advantage of sericulture industry lies in its high employment potential with low investment. One hectare of mulberry cultivation creates employment to 12 to 15 persons throughout the year. Most of them are women thereby supporting a greater role for women in development. In Tamil Nadu, promotion of sericulture is done through self-help groups. There is a need to protect the Indian silk producers from Chinese competition through anti-dumping duty. The Central Sericulture Research Institute has developed and introduced new mulberry varieties which are suited to new productive silk worm cross breeds for increased cocoon and silk production. It is proposed to continue plantation of new varieties and increase the area under such varieties, so that the farmer can raise

crops with more silkworm layings for increased yield etc.

SERICULTURE is an Agro-based Cottage Industry which deals with production of smooth and glittering natural fibre Silk "Queen of Textiles". The silk is obtained through a unique biological process of Silkworms. *Sericulture* or *Silk farming* presents a potential high value yielding alternative for small and marginal farmers, whose scale or lack of it makes farming of conventional crops unviable. A model for maximizing value generation for farmers through unconventional crops. There is a strong need for introducing high value yielding crops with sustainable market and demand, for the small and marginal farmers.

### Review of Literature

According to Sinha (1989: 157), within the available sources of literature on silk production, systematic information on the socio-economic dimensions of the activity, is lacking. While this is so, studies on the socio-cultural aspects of the activity, that is so significant in the process of development, are hardly discerned. Cultural factors are often considered 'very difficult or too abstract to measure', and so, 'largely ignored in development programmes' (Coletta 1990:87)

The booklet Literature on Sericulture, brought out by the Karnataka State Sericulture Development Institute (KSSDI) in 1990 includes, apart from a list of serial publications, a list of 77 books, 86 M Sc. and PGDS Dissertations and 31 Doctoral Theses. Of these, there are only seven works, under the book section, that have got some relevance to social significance of sericulture. Even among these works, the cultural perspective does not come out significantly, except for Charsley's (1982) work Culture and Sericulture.

In this context, it is worth noting the Beneficiary Assessment Studies of the National Sericulture Project, in all the traditional sericulture states, covering almost all aspects of sericulture with policy orientation. There have been efforts to publish some of the studies of this project (e.g.,

Acharya 1993; 1994). Global Silk Scenario - 2001 (Ganguly 1996) is a collection of the Proceedings of the International Conference on Sericulture -- 94, brought out by the Central Silk Board., covering all aspects of sericulture. With these notable few exceptions, Cultural perspective of sericulture is still dormant. The available studies with socio-economic perspective mainly focus on the economic aspects of income-employment, technology and production-consumption paradigm rather than the impact on the socio-cultural institutions and agrarian relations. Nevertheless, even such studies become useful in the extrication and analysis of the socio-cultural factors of sericulture.

There are studies that have established the large scale employment and the high yield potential of sericulture (e.g., Hanumappa 1986b; Rajpurohit and Govindaraju 1986). The employment potential of sericulture is reinforced by the fact that most of the silk production activities are all in informal sector and menial in nature. For this reason, about 90 per cent of their employment go either to the landless or to the marginal farming families that hire out their labour, or to the sericulture families (Sinha 1989).

There are quite a few studies that have focused on the technological aspects of sericulture. Sharan (1984) strongly pleads for a better and suitable technology and the transfer of the same at the field level. He also cautions about the limits of automation that may take away its employment potentiality. Sinha (1989: 160) looks at the social implications when he is skeptical about the technological changes in sericulture requiring significant capital investment and thereby becoming a disadvantage for those who cannot invest.

Realizing the failure of Indian efforts in producing quality silk to compete in the world market, Sharan (1984) suggests exploring the feasibility of making non-mulberry silk more competitive. Sinha (1989;1990) discerns the prospects for Indian silk, in the light of a substantial import of raw silk, declining production in Japan and Korea and of the indications of stagnancy in China, despite a growing world market.

Sericulture has got a high socio-cultural significance for rural society. Studies on socio cultural aspects are scanty. Even the few studies available have only a limited coverage of the cultural aspects. One of the notable contributions in this area, as has already been mentioned, is that of Charsley (1982). The main focus of his study is on the policy formulations and the gaps that exist between the propounded policies and the field situation vis-a-vis the development of the industry.

G.K. Karanth (1995) has looked into some of the continuities of agrarian relations, in the context of sericulture. Nanavathy (1990) and Sharan (1984) touch upon the traditional beliefs in sericulture. Sericulture is primarily a household activity. The technological requirement in sericulture and changes in social institutions consequent to the adoption of sericulture may often lead to different hypothetical situations and divergent processes that run in opposite directions. For example, while the intensive labour requirement may lead to higher drop-outs from schools, improvement in economic status may lead to higher enrolment in schools. Likewise, a commercial enterprise like sericulture may lead to nuclearisation of households but the need for more and more labour may necessitate to opt for extended families. Moreover, Sericulture is an on-farm as well as an off-farm activity, stretching throughout the year and requiring specialised labour attentiveness. For this reason, it could restrict the participants from attending to the social gatherings and wider social interactions. On the other hand., the commercial nature of sericulture could provide a better scope for wider interaction. Emergence of new roles and status position may alter the interactional dynamics and value orientation of the people. The marital and kin-ties could sometimes serve as a means in the percolation of sericulture information. Such a pattern of differential impact needs an examination to assess the direction in which changes occur in reality.

G.K. Karanth's (J 995: 112-13) observation shows an increased female participation in sericulture. He also takes note of the belief of the people that the contact of the menstrual women, affects the growth of the worms and results in the

total failure of the crop. As the women have to perform the double task of domestic and productive labour, Irene Tom (1989) found an unequal division of labour in favour of men. Thus, women's contribution towards productive labour, their work recognition, and the effect of these on their position and status, are of crucial importance in today's context in any socio-cultural study.

Sericulture involvement may compel one to develop greater or lesser interaction with other households of the village. A specific kind of relationship develops, in the context of sericulture, in view of its regular labour requirements, informational exchange, and sericulture interdependency.

The better economic standard could alter the pattern of traditional obligations and value system. Karanth notes of the creation of a specialised class of labourers and the emergence of new roles in the context of sericulture. He also notices an increased demand for the services of artisans. Another significant factor underlined in his study is the increased interaction with the neighbouring villages, both in terms of frequency and of purpose, following the advent of sericulture.

Sericulture offers extensive opportunities for the main participants to go out of the village and interact with the wider world. In the process, they interact with officials and with their counterparts from different regions, apart from their exposure to urban centres. In availing the credit facilities, attending training programmes and acquiring the technical knowledge, they have the opportunity to interact with a number of bureaucrats and government personnel. Further, the activity as such expects the rearers to make appropriate and crucial decisions, at various occasions in the process, demanding strict regularity and discipline. All these have a strong influence and impact on the attitudes and values of the individuals. A clear understanding of all these aspects could help in better planning and implementation of such and similar programmes and in grasping the functioning of social processes.

Any new technology or innovation becomes adopted or rejected, depending on its compatibility with the existing pattern of beliefs and values. The

traditional outlook of the people has sometimes come in the way of adoption of sericulture and some of its technological innovations. (Sharan 1984: 11,46).

Simon Charsley finds that the success or failure of the production processes in sericulture is always believed to be a matter of the individual's fate. He also finds the pervasive influence of some of the traditional institutions like caste playing an important role in the adoption of a new agro-based activity. For example, he comes across instances where the dominant castes do not allow the officials of sericulture department belonging to lower castes entering from their houses (1982: 94-5, 108).

Sericulture has also come to have closer association with some of the ritualistic aspects. Nanavathy, for instance, has recorded some of the ritualistic aspects related to sericulture, in different countries. In south India, the farmers rear the silkworms with god-fearing devotion and considers them sacred. No stranger can enter the rearing part of the house and none with shoes on (1990: 66). Here, the hygienic significance of sericulture has come to reinforce the ritualistic orientation of the people.

The sericulture adoption has suffered in some instances because of its perceived health implications. In some other instances, work intensity and its implications of social constraints have contributed to its non-adoption. Beliefs of purity and pollution have its implications on the nature of women's involvement in the activity. All these have an influence on the process of decision-making at various levels, in the adoption of sericulture and its practices. The extent of these beliefs and values, their dynamic process and implication requires deeper study. So, a better understanding and analysis of these aspects in the context of sericulture become crucial.

The available literature provides a scope for rich and vast areas of issues that require an empirical examination, in the context of sericulture.

Geographically, Asia is the main producer of silk in the world and produces over 95 % of the total global output. But, bulk of it is produced in

China, India, Japan, Brazil and Korea. India is ranked as the second major raw silk producer in the world. It contributes about 18% to the total world raw silk production.

Among the varieties of silk produced, mulberry silk accounts for 89.45%, followed by eri, tasar and muga at 8.04%, 1.89 and 0.62%, respectively. About 40-45% of silk produced is from charka and about 40-45% is from cottage basins and the rest 10% silk is from multi-end reeling. It is this position along with its immense employment potential, that makes sericulture and silk, indispensable in the Indian textile map.

Silk and silk goods are very good foreign exchange earners. The Indian Silk goods have high export potential because of its distinctness and low production cost. During 2007-08 (upto September 2007), the total silk exports were Rs. 1,376.91 crores. It is estimated that upto March 2008, the total silk exports is likely to reach Rs. 3,500.00 crores.

Silk, a naturally produced animal fibre of unparalleled grandeur is rightly called as The Queen of Textiles. It is characterised by exquisite qualities like the natural sheen, inherent affinity for dyes, vibrant colours, high absorbance, light weight, resilience and excellent drape, etc.

Sericulture is one of the most labour intensive sectors, combining activities of both agriculture (sericulture) and industry. The production process involves a long chain of interdependent, specialized operations which provide a means of livelihood to a large section of the population, i.e., silkworm seed producers, farmers-cum-rearers, reelers, twistors, weavers, spinners of silk waste, traders, etc. It is practiced in about 53,814 villages all over the country. It provides employment to about 6 million people, most of them being small and marginal farmers, or tiny & household industry mainly in rural areas.

### **Significance of the Study**

Sericulture, denotes the technique of silk production, is an agro-industry, playing an eminent role in the rural economy of India. Silk-fibre is a protein produced from the silk-glands of silkworms. Historically, sericulture was introduced for the first time, into China by Hoshomin, the Queen of China.

For a long time, sericulture was considered to be a national secret by the Chinese Government, and as an industry it was not known in other countries. Later, it was introduced into Europe and Japan as well. According to reports available, sericulture was introduced into India about 400 years back and the industry flourished as an agro-industry till 1857, with an annual production of two million pounds of silk fibre.

The annual production of silk in the world is estimated at 45,000 tonnes of which Japan and China contribute 18,936 and 13,200 tonnes respectively. South Korea, USSR and India are the other leading sericultural countries in the world. The industry has survived the stiff competition with the man-made fibers and it is now estimated by the Food and Agriculture Organisation of the United Nations that the total requirement of silk by 1980 would be of the order of 80,000 tonnes, leaving a demand of 35,000 tonnes. Japan, which is the premier silk-producing country, owing to its recent industrialization, high cost of labour and the shortage of land available for mulberry cultivation, has its limitations in increasing its production.

Further, owing to heavy internal consumption, Japan has become an importer of silk, thus widening the gap between production and demand. This situation has given a boost to the sericulture industry in the developing countries, e.g. India and South Korea. Among the developing countries, India enjoys a very favourable position for doubling the present status of silk production of 2,969 tonnes owing to the low cost of labour. Sericulture is ideally suited for improving the rural economy of the country, as it is practiced as a subsidiary industry to agriculture. Recent research has also shown that sericulture can be developed as a highly rewarding agro-industry.

### **Background of the Sericulture Industry in India**

In developing countries like India, agriculture and agro-based industries play a vital role in the improvement of rural economy. The limited availability of land, the limited cash returns, and agriculture being confined to one or two seasons in the year, have made villages to look for

supporting rural industries, such as sericulture. Agriculture and sericulture are adopted simultaneously by the agriculturists in regions where the ecological conditions are favourable. In India, over three million people are employed in various fields of sericulture. It is a cottage industry and provides ample work for the womenfolk in the rural areas in rearing silk worms, while the male members work in the fields. Recently the enforcing of new ideas by research institutions both in mulberry cultivation and silk-worm-handling among sericulturists, the industry is now practiced as a main profession and as a major cash crop of the country.

As Tamil Nadu is one of the major sericultural states, there is a separate Directorate for Sericulture. Government of Tamil Nadu has introduced a number of schemes for giving financial, technical and material assistance in sericulture. The following are the schemes:

- \* Drought Prone Area Development programme
- \* Hill Area Development Programme
- \* Adi Dravidar Improved Programme
- \* Integrated Tribal Development Programme
- \* Integrated Rural Development programme

In Tamil Nadu, the area of mulberry cultivation is 25408 hectares forming 0.39% of Gross cropped area of the state Dharmapuri, Erode, Coimbatore, Salem, North Arcot and Dindigul are the districts where mulberry cultivation and silk worm rearing are concentrated Sericulture consists of cultivation of mulberry and rearing of silkworms. Sericulture Industry has a high employment and income generation potential for farmers, especially women in Tamil Nadu. 60% of the works are carried out by women and they are involved in garden maintenance, Silk-worm rearing, cocoon harvesting, silk reeling etc. These become an alternative for rural employment and income generation. Tamil Nadu is the major silk consuming state and the estimated requirement of silk will be

1500 metric tones per year. The failure of monsoon for three consecutive years and downsizing of import duty have influenced the price of domestic silk and cocoon price affecting the economics of sericulture for farmers.

## Objectives

The following are the specific objectives of the present study:

1. To portray the significance of the Sericulture farming in India
2. To highlight the findings & conclusions

## Discussions

The following are the significance and important merits of sericulture which make it an attractive and promising alternative agricultural practice:

- **Ideal for smaller farmers and weaker sections of the society**  
Sericulture is viable even on very small land holdings and needs low capital to start. An acre of land can support a family of three without hiring additional labour. An investment of INR 12000 – 15000 (excluding cost of land and rearing shed) is sufficient for undertaking mulberry cultivation and silkworm rearing. Mulberry once planted can support rearing for up to 15-20 years.
- **Higher Return per acre of land to the farmers**

Economic returns for a farmer engaged in mulberry plantation and silk worm rearing are considerably higher as compared to conventional crops. According to Central Silk Board, a farmer can make up to INR 30,000 per acre annually by practicing sericulture. Whereas with conventional crop farmers struggle to earn around 15 to 20 thousand per acre per year. However research and personal interviews with people connected to sericulture revealed that the

income from sericulture can go upto INR 1.00 Lac ( 0.1 million). The Internal Rate of Return (IRR) from sericulture can be as much as 40% which is as good as most high return yielding businesses.

- **Higher share of value chain for the farmers**

About 55% of total revenue generated in the entire cycle of silk production (from mulberry plantation to fabric weaving and trading) is from the mulberry plantation and silk worm rearing. Reeling & twisting gets about 15-16% of the revenue. Only 30-35% of revenue accrues to the weavers and traders. Hence sericulture provides the farmer a unique opportunity of being the majority shareholder in the value chain of an agriculture based product.

- **Short gestation periods and higher no. of crops**

Unlike the conventional crops, mulberry has a shorter gestation period and a farmer can have as much as 5 crops in a year. It is also an all season crop and thus provides round the year employment. Shorter gestation periods also mean that the cash flows are better and the farmer does not have to stay invested for longer period of time thereby reducing the cost of capital and the risk accruing from the failure of a crop.

- **Robust demand and sustainable market for silk**

India is the second largest producer of silk in the world after China. Despite of this India still imports 20 % - 25% of its domestic demand from China. In the year 2011, domestic consumption of silk was around 28733 MT while India produced only 23060 Mt of raw silk. This means that India not only has a strong captive domestic market, but also a huge export potential. Government has also imposed anti dumping duty on cheap silk imported from China in order to protect the domestic producers

- **Potential for multiple crops / Inter cropping**

Mulberry is a deep rooted plant. It allows for inter cropping with shallow rooted plants, short term pulses, vegetables and flower plants, provided that there is no use of insecticides. Hence along with the regular income from sericulture, a farmer also has a potential of extra income through organic horticulture or floriculture.

- **Women Friendly**

Once the plantation is done, all the other downstream activities like mulberry garden management, leaf harvesting, silk worm rearing are women friendly. About 60% of the labour force in sericulture in India are women. Reeling of silk from the cocoons provides a great opportunity for enterprising rural women for a homestead livelihood.

- **Economic potential of by-products produced during the silk farming**

Like coconut tree, by products or waste generated at each stage of sericulture has an economic use. Mulberry twigs left after feeding leaves to worms can be used as fuel. The moths after dying are used for feeding fish in pisciculture.

## **Conclusion**

In India, the majority mulberry silk producing states are Karnataka, Andhra Pradesh, West Bengal, Tamil Nadu and Jammu & Kashmir which together accounts for 92 % of country's total mulberry raw silk production. Sericulture suits both marginal and small scale land holders because of its low investments, high assured returns, short gestation period, rich opportunities for enhancement of income and creation of family employment round the year. In reality, it is an occupation by women and for women because women form more than 60%

of the workforce and 80% of silk is consumed by them. The nature of work involved in the sericulture industry such as harvesting of leaves, rearing of silkworm, spinning or reeling of silk yarn and weaving are carried out by women. It is a high income generating industry which is regarded as an important tool for economic development of a country. Thus, Sericulture provides a great opportunity for small and marginal farmers for turning into entrepreneurs.

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