



Sericulture: A Promising Strategy for Rural Livelihood Enhancement

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Abstract

Sericulture is considered an important cash crop due to its low investment requirements and high returns. The entire process, from mulberry cultivation to silkworm rearing and silk weaving, contributes to high remunerative return. Sericulture can be practiced by farmers of every section of society as silkworms require relatively small area, and family labors are self-sufficient. Sericulture also offers high yields with minimal gestation periods, making it an economically feasible option for underprivileged sections of society. This review explores the potential of sericulture, the rearing of silkworms, as a key strategy for enhancing livelihoods in rural areas.

Keywords: Sericulture, silkworm, rural upliftment, employment, women empowerment, livelihood enhancement.

Introduction to sericulture

Sericulture is the practice of cultivation of silkworms to produce silk. It was originated in China around 5000 years ago. It also involves growing the host plant for feeding the silkworms. Mulberry leaves are well suited for feeding silkworms.

Sericulture consists of three distinct categories of activities:

1. Cultivation & Maintenance of Silkworm Host Plant.
2. Rearing of silkworm for production of cocoons
3. Extraction of silk yarn from cocoons i.e. Silk Reeling and other Post Cocoon activities like spinning, twisting, weaving, processing, printing etc.

The silkworm rearing process starts with the hatching of silkworm eggs, followed by nurturing the larvae with mulberry leaves until they attain the cocoon-spinning stage. During this stage, the silkworms produce fibroin, a protein-based substance, to form their cocoons. Once the cocoons are formed, they are collected and subjected to degumming, a process involving boiling the cocoon to remove the sericin, a sticky substance binding the cocoon. After degumming, the silk fibers are carefully unraveled from the cocoons and spun into threads. Then these threads are subjected to various processes which include dyeing, weaving, and finishing, to produce quality and strength silk. Despite its ancient origin, sericulture continues to evolve, by blending traditional methods with modern technologies to meet contemporary demands.

Sericulture in India

India is the only country in the world which produces all the four varieties of silk namely Mulberry, Eri, Tasar and Muga. Mulberry is the largest practiced sericulture industry in India. Mulberry silk production roughly contributes around 70-75% of entire silk production in the country. India is the world's second largest producer of raw silk and consumer of pure of silk.

India has made significant strides in silk production over the years. During the last decade, the country managed to increase its raw silk output by almost 13,000 metric tonnes. This increased production has reduced India's reliance on silk imports from China. The growth can be attributed to two main factors: the adoption of high-yielding varieties of mulberry plants and the use of superior quality bivoltine cocoon breeds. In the fiscal year 2022-23, India produced a total of 36,582 metric tonnes of silk. Despite challenges posed by the COVID-19 pandemic, the raw silk production marginally increased by 1% (reaching 35,820 metric tonnes) during 2019-20 compared to the previous year.

Sericulture also provides livelihood to large sections of the rural and semi-urban population, i.e. for the people engaged in pre-cocoon to post-cocoon sectors of sericulture industry. In recent years the Sericulture is practiced by many farmers as a cash crop in the agriculture sector and it is a boon to the farmers to change their socio-economic status. The sericulture activities in India are spread across 52,360 villages. The country produces silk garments, made-ups, fabrics, yarns, carpets, shawls, scarves, cushion covers and accessories through the raw material. sericulture provides livelihoods for 8.7-9.76 million people (about half the population of New York), particularly in rural areas and weaker economic sections, with women playing a significant role in this labor-intensive, home-based industry (Upadhyay & Barman, 2013).

Table 1: Silk production in India for the period 2018-2023

Year	Raw Silk Production (metric tonnes)
2018-19	35,468
2019-20	35,820
2020-21	33,770
2021-22	34,903
2022-23	36,582

Source: The data resource from central silk board, Bangalore (Central office).

India is the second-largest producer of silk globally. The country produces all five known commercial silks: mulberry, tropical tasar, oak tasar, eri, and muga. Among these varieties, mulberry accounts for the highest production (70.72%), followed by eri (20.55%), tasar (8.02%), and muga (0.71%). In 2013-14, employment in the sericulture sector was 7.85 million persons, and it increased to 8.51 million in 2016-17. The estimated employment generation under sericulture in the country during 2020-21 is 8.7 million persons.

Table 2: Production volume of raw silk in India in financial year 2023, by state

S.No.	State	Production (metric tonnes)
1	Karnataka	8,722
2	Andhra Pradesh	6,903
3	Assam	5,004
4	Tamil Nadu	1,886
5	West Bengal	1,325
6	Meghalaya	1,014
7	Jharkhand	834
8	Maharashtra	414
9	Manipur	328
10	Nagaland	304
11	Uttar Pradesh	236

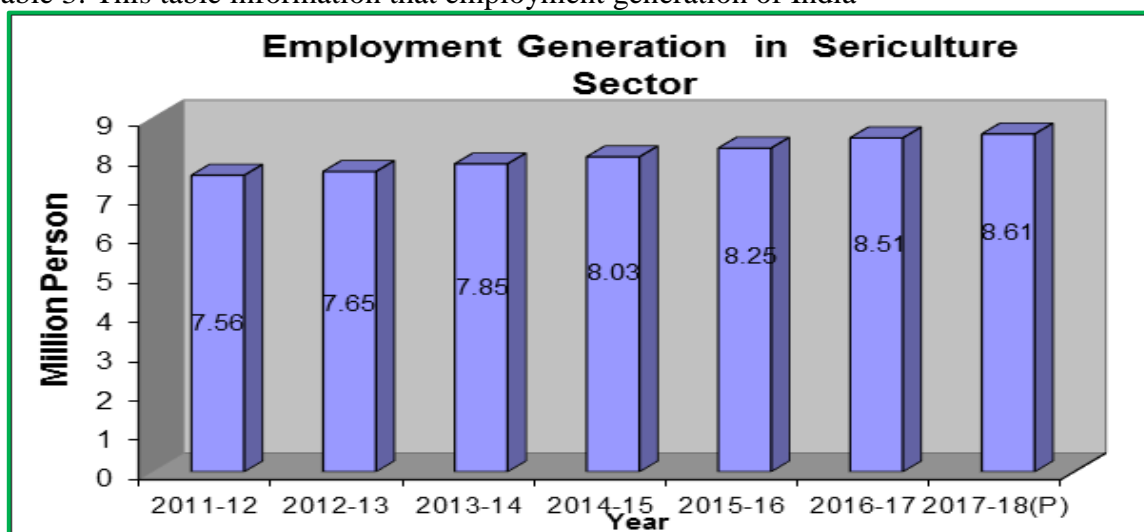
12	Telangana	216
13	Chhattisgarh	145
14	Tripura	88
15	Jammu & Kashmir	79
16	Mizoram	68
17	Arunachal Pradesh	49
18	Odisha	48
19	Himachal Pradesh	31
20	Uttarakhand	23
21	Madhya Pradesh	15
22	Kerala	8
23	Punjab	4
24	Bihar	2
25	Haryana	0.3
26	Sikkim	0.2
27	Total	36,582

The total raw silk production in India during 2020-21 was 33,739 MT, which was 5.8% lower than the previous year due to disruptions caused by the Covid-19 pandemic. Despite challenges, India's traditional domestic market and diverse silk garments continue to position the country as a leader in the silk industry

Major silk-producing states include Karnataka, Andhra Pradesh, Assam, Bodoland (Assam), West Bengal, Jharkhand, and Tamil Nadu. The Northeast region stands out as the only area producing all four silk varieties: mulberry, oak tasar, muga, and eri. Overall, the Northeast contributes 18% of India's total silk production.

Sericulture is an important labour intensive sector in the world and Indian economy combining both agriculture and industry. It provides livelihood to large section of the rural and semi-urban population i.e., mulberry cultivator, cooperative rearers, silkworm seed producer, farmer cum rearer, reeler, twistor, weaver, hand spinners of silk waste, traders etc. Sericulture is a cash crop in the agriculture sector; it gives returns within 30 days. Hence, this helps to rural people for the socio-economic development, women empowerment, increase children's education, social activities developments through sericulture activities in India.

Table 3: This table information that employment generation of India



Source: International Sericulture Commission 2018.

This table information that employment generation of India created more employment generation in sericulture. On the whole high employment generation of India sericulture in recent years 2017-18 is about 8.61 percent is a positive relationship.

The sericulture sector provides employment opportunities for about 8.7-9.76 million people and 1 hectare of mulberry cultivation provides yearlong continuous employment in the state. They cater to the demand of parental seed cocoons required to produce cross breed and bivoltine hybrid laying. Sericulture is mainly spread over in the southern part of Karnataka, due to this fast modernizing happens like- urbanization, industrialization, and fill the gap of scarcity of agriculture labour.

Distributions of respondents according to their land holding

Sericulture being a farm-based enterprise is highly suited both for large and small land holdings, with low capital investment. Large silk goods are purchased by the urban rich and middle-class consumers which are estimated around 57% of the final value of the silk fabric in the rural areas (Gangopadhyay, 2009).

Table 4: The data presented in the table inferred that majority of 61.66 per cent respondents

Categories	Percentage
Landless	35%
Marginal (<1 hac)	61.66%
Small (1-2hac)	3.33%
Medium (2-4 hac)	-
Large (>4 hac)	-

The data presented in the table inferred that the majority of 61.66 per cent respondents were marginal farmers having land holding less than one hectare followed by landless category (35 %). Only 3.33 per cent belonged to small farmers with land holding 1-2 hectares of land. The reason may be that this enterprise requires less land as well as the respondents were poor, and they adopted this enterprise just to meet their livelihood needs or for support to their other economic resources. None of the respondents were found in the large and medium category.

Table 5: contribution share of women in sericulture

Acreage Range	Percentage of Land Holdings
Less than 0.5 acre	23%
More than 0.5 acre to 1.0 acre	47%
More than 1.0 acre to 2.0 acres	23%
More than 2.0 acres	7%

Role of sericulture in socio-economic development of rural livelihood

Employment generation: Sericulture is a part of the agriculture activities in the country. It generates more employment opportunities when compared to other industries, especially in rural and semi-urban areas. Sericulture is a labor-intensive industry in all its phases. It can generate employment for up to 11 people for every kg of raw silk produced. Out of which more than 6 persons are women. More than 60.00 lakh persons are employed as full-time workers in the production chain out of which 35-40 lakh persons are women (Rama Lakshmi C.S. 2007).

Low gestation: Sericulture operations require very low investment for their initial establishment. Mulberry takes only 6 months to grow for commencement of silkworm rearing mulberry once planted will go on supporting silkworm rearing year after year for 15- 20 years depending on management provided. By adopting the stipulated package of practice, a farmer can get up to Rs. 30000 per acre/ per annum.

High returns and women empowerment: Sericulture provides tremendous opportunities to the women in the rural areas particularly in silkworm rearing and reeling activities with reference to income. 60 percent of the women employed in downstream activities of sericulture in the country. This achievement is possible because the sericulture sector started from mulberry garden management, leaf harvesting and silkworm rearing. Women in rural India participate in a variety of economic activities.

Ideal Programme for weaker sections of the society: Sericulture is an ideal programme for weaker sections of society due to low gestation, higher returns. Acres of mulberry garden and silkworm rearing can avoid maximum laborers and save wages in the sericulture sector of the state. Tasar silkworm process can offer supplementary gainful employment for tribals compared to other sericulture activities.

Eco-friendly activity: The sericulture sector is an eco-friendly activity because as a perennial crop with good foliage mulberry contributes to soil conservation and provides greenery. Waste from silkworm rearing can be recycled as inputs to garden. Development programmes initiated for Mulberry plantation are mainly in upland areas where un-used cultivable land is made productive.

Income generation: Sericulture is an income generating agro-enterprise in the mid hill region to alleviate poverty, through increasing rural women employment and their income, and thus, has been given due priority by Agriculture Perspective Plan. Sericulture is a potential sector of the agriculture to raise economic status of the farming community and earning foreign revenue (Thapa and Shrestha, 1999)

Sustainable development: Sericulture can be integrated with existing agricultural practices, promoting sustainable land management and resource utilization. For instance, mulberry leaves can be used as fodder for livestock, reducing waste and creating a more efficient agricultural system.

Conclusion

Sericulture emerges as a beacon of hope for rural livelihood enhancement, encapsulating a low-investment yet high-return agricultural practice that significantly contributes to India's economy. It's a strategic industry that not only supports the socio-economic upliftment of nearly 9 million people, especially women and marginalized communities, but also aligns with environmental sustainability. By producing over 36,000 metric tonnes of silk, India reinforces its position as a key player in the global silk market, while fostering green practices through sericulture's synergy with agriculture. This industry is a testament to the potential of traditional practices in driving modern economic growth and sustainable development across more than 50,000 villages, underscoring sericulture as a promising strategy for rural livelihood enhancement.

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