

## Women Participation in Sericulture Farming: An Exploration of Issues and Challenges in Kashmir.

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### Abstract:

*India contributes almost 18% of the world's raw silk, ranking next to China. The region of Jammu and Kashmir has been a prominent stakeholder in the industry. Sericulture is an age-old occupation and has an important role in Kashmir's economic development. Women perform 60% of sericulture's activities, making it one of their significant livelihoods that promote the empowerment of rural women. However, women's participation in this industry has declined due to several factors. Thus, the study explored the various causes of the decline in sericulture in Kashmir and the barriers that hinder women from participating in this industry.*

**Key words:** Sericulture, Decline, Rural Livelihoods, Kashmir, Economic Development.

### Introduction

Silk is known as the "queen of textile" and is globally renowned for its luster, sleekness, softness, and also have an affinity of dyeing, thermotolerance and water absorbance. (Bharathi, 2016). Sericulture comprises rearing of silkworms to produce raw silk, a type of yarn harvested from the cocoons of specific silkworm species. Asia is the leading silk-producing continent in the world, accounting for more than 95% of global output, despite the

fact that silk is produced in more than 40 nations worldwide. China is the leading silk producer, followed by India, Japan, Brazil, Korea, and other countries (Baladhandapani et al., 2019). India is recognized as the second-largest producer and biggest consumer of raw silk, with a share in the global output of almost 18%. About 97% of silk production is mainly carried out by five states namely Karnataka, Jammu and Kashmir, West Bengal, Andhra Pradesh, and Tamil Nadu (T. A. Bhat, 2014). Sericulture has evolved as a substantial cash crop with little investment, a short production period, great livelihood potential, a highly remunerative income, is well adapted to the rural economy, and is based on basic technology. (Chanotra et al., 2019). About 60 lakh people in India are practicing various activities of sericulture throughout the year as silk farmers, silk rearers, reelers, twistors, and weavers (Sharma & Kapoor, 2020). In India's sericulture business, women make up more than 60% of those engaged in downstream activities (Satsangi, 2014). In India from 2018 to 2019 sericulture has provided livelihood to about 91.78 lakh persons. So, it is assumed that around 55 lakh persons engaged in sericulture during this period were women labourers (Roy Chandan and Mukherjee, 2020). The regular money generated by sericulture is shared equally among all members of the community, regardless of their social status, race, gender, or religion. It's crucial in empowering women and helping them achieve economic, political, and social autonomy (Kasi, 2013). This level of female involvement in the sericulture sector revealed it as a remarkable option of occupation and helps in the eradication of unemployment problem among the rural women (Parimala, 2009). As per a field survey conducted by Central Silk Board, sericulture was found to be the top sector in offering jobs as compared to other agro-sectors in India (Satsangi, 2014). The national raw silk production in 2019–20 was 36,152 MT, up 1.9% over the previous year's output and almost 93.8% of the annual projected output for the year 2019–20. In 2019–20, mulberry silk production increased by 0.2% from the previous year (Galore- et al., 2020).

## Research Methodology

Exploratory Research Design was undertaken to explore factors responsible for decline of sericulture farming. Further, the decline was also assessed in terms of its impact on women participation in sericulture farming. The study is qualitative in nature and conducted with a total of 25 women rearers involved in the sericulture farming. The study has been conducted in district Baramulla. Selection of district has been done on the basis of higher silk production and higher number of silk worm rearers than rest of the districts as per the data acquired from Sericulture Development Department Srinagar, Jammu & Kashmir, 2021. The study has used Purposive Sampling method. Primary data were collected through in-depth interviews with respondents. In addition, Interview Schedule was used to capture respondents' socioeconomic profiles. Various books, journals, and government reports were consulted for secondary data collection.

### **Socio-Economic Profile**

The socio-economic profile of respondents revealed that silkworm rearing is subsidiary occupation of people in Kashmir. Women play major roles in all activities, with the exception of those that require them to leave their homes, such as gathering planting materials and purchasing fertiliser and manure. The socio-economic status of respondents is weak. They belong to economically weaker section of society with 56% among 25 respondents belong to PHH (Priority House Hold) category and 44% to BPL (Below Poverty Line). As far as, their income is considered 68% of respondent's monthly income of the household is under the range of 8000-10500 while remaining 32% of respondent's monthly income is in the range of 10501-13000. The share of income generated from sericulture farming is in the range of 3000-5000 per month, which contributes around 28% of income to former and 38% to later. Also, 64% of respondent's belong to nuclear family and 36% to joint family, with 5 members as an average number of family members in both types. Educationally, they are also lagging behind which hamper them in proper implementation of new tools and techniques required in sericulture farming.

## The Decline of Sericulture Farming in Kashmir

Sericulture being the cultural heritage of Kashmir and is one of the traditional industries but there is no proper record as to how and when exactly this industry originated in Kashmir. Sericulture is carrying a rich history in the UT of Jammu and Kashmir and has been a component of the backbone of its economy. This industrial sector has been favoured due to the prevailing weather conditions and the availability of skilled labour. However, the depression of the 90's left deep scars on the silk industry of Kashmir as this was a period of inefficient prices, competition, dumping, and loss of market. Which resulted in the loss of foreign markets and home markets were flooded with Chinese and Japanese products, which were cheaper than the local products (Naik, 2017). Since then, there has been a decline in the sericulture industry in Kashmir, though being famous throughout the world for its qualities but it has a poor reputation for silk production and export. Despite having favourable agroclimatic conditions for the growth of the silk industry, Jammu and Kashmir only produce a negligible amount of silk annually (T. A. Bhat, 2014). Survival in the new global business market necessitates increased productivity, and the sericulture industry must improve the quality of its products, make judicious use of technology, and take advantage of all the government-provided opportunities to combat the intensified competition. Also, competition among silk producers made it difficult for some sericulturists to sell their silk due to the inflow of foreign silk in the market at lower costs. The challenge that lies ahead is to realign the production strategies in order to compete successfully in both the domestic and the global markets by producing silk of a high quality at an affordable price (G. Savithri, 2013).

Presently, sericulture farming is carried out across all 20 districts of Jammu and Kashmir and chief silk-producing districts are Anantnag, Baramulla, Ganderbal, Kupwara, Kathua, Pulwama, Rajouri, Reasi and Udhampur. The Sericulture industry provides part-time employment to almost 33,000 families across 2800 villages of Jammu and Kashmir through

silkworm rearing, besides employing 5000 persons on regular basis in the public sector (Board et al., 2016). Out of these 2800 villages, around 1500 villages are of Kashmir division and around 1300 villages of Jammu division (M. A. Bhat et al., 2020). As Compared to the past scenario the number of villages and families has been reduced. There were approximately 8.32 million kgs of silk cocoons produced in Kashmir in 2009. This is down significantly from the 15 million kgs produced in the year 1900. The dramatic drop of silkworm rearers is to blame for the resulting drop in cocoon production. (Board et al., 2016). Also, the number of villages has been reduced to 1197 in Kashmir with the production of silk cocoons was 210 metric tonnes in 1990-91 that reached to 347 metric tonnes during the year 2019-20 (Mushtaq et al., 2021). Moreover, only about 350–400 farmers in each area are currently growing silk worms, down from an estimated 1800–2000 farmers who were connected with sericulture in each district three decades ago. In reality, during the previous five decades, the state's silk production has dropped by fifty percent, which equates to a loss of one percent of silk production per year on average (Gulzar, Farzana and Gul, 2015). Kashmir's silk cocoon output and productivity have gone up because of high-yielding mulberry varieties, silkworm bivoltine hybrids, and separate sheds for raising the silkworms, effective management and implementation of training schemes and programmes. Though area under mulberry plantation shows decreasing trend and negative growth rate due to inappropriate plantation practices and unwillingness of farmers towards growing of mulberry plants in their land (Mushtaq et al., 2021).

## **Factors of Decline in Sericulture farming in Kashmir**

### ***A. Physical factors***

1. *Scarcity of Raw Material:* The rearers ability to obtain sufficient supplies of high-quality mulberry leaves at the appropriate times and locations was discovered to be a constant

constraint. However, the department has begun working on the various mulberry plantation schemes. Currently, the Department maintains mulberry nurseries/farms where standard-sized, high-quality mulberry plants are grown year after year for distribution to silkworm rearers. Unfortunately, the nurseries are not located in areas with a large number of silk worm rearers. Mulberry leaves thus keep the rearers confined throughout the entire season, which negatively impacts the development of cocoons. For the leaf arrangement, the traditional rearers had to travel to remote locations and from one village to another (Fatima, 2013). Reduced cultivation of mulberry plants and availability of only 67 government nurseries in Kashmir among 173 nurseries in whole UT of Jammu and Kashmir further aggravates the issue (Malik, 2009). In comparison to the potential of 30.00 lakh plants, these nurseries produce about 20.00 lakh plants annually. The scarcity of mulberry leaves is due to unavailability of land to most of the rearers which are dependent upon roadside trees or other farmers. Moreover, area under mulberry plantation shows decreasing trend in Kashmir valley which was 270 hectares in 1990-91 and reached 211 hectares in 2019-20 (Mushtaq et al., 2021). The situation get worse when leaves fall short for silkworms if rearers are distributed with more silkworm seeds (Dar et al., 2021). Also, silkworms require a greater quantity of mulberry leaves in their final stages of development, which requires rearers to spend more time collecting leaves, which they typically cannot afford (K. A. Wani & Jaiswal, 2011).

Participant narrated that

*“Sericulture has remained better choice of livelihood for me as I used to perform its various activities within the vicinity of house, but now due to un-availability of raw material it seems I am losing this option...”*

2. *Adherence to Traditional Practices and Dearth of New Innovative Equipment:* The rearing is still of a relatively simple type and is carried out in a domestic setting with traditional

Sikiris and local mounting materials. Silk worm larvae release long threads of silk when they mature, which can be utilized to build cocoons with a mountage. Mountage or mounting material is the most crucial factor in silk worm spinning cocoons (Singh, 1995, Mathur and Qadri 2010., Singh et al., 2012) and the action of moving the mature larvae is known as mounting (Rajan et al., 1996., Shinde et al., 2012). Even if the silk worm crop is healthy, it has been observed that improper mounting methods, spinning conditions, and mounting material can result in inferior or low-quality cocoons and silk fibers, thereby decreasing farmer income (Rajan et al., 1996, Singh and Kambli 1997, Singh et al., 2011). Due to insufficient rearing space and apparatus at rearers' locations, floor rearing and shelf rearing are used to accommodate the vast number of silkworm larvae in North India or North West Indian states in general, and Kashmir's temperate climate in particular (Khan et al., 2010; Wani and Jaiswal 2012). When the worms mature, locally available materials like paddy straw or other plant material are retained or placed over the rearing bed to allow the worms to crawl over and produce cocoons. When the mountage's material and structure are poor, cocoons become less reliable and more likely to have multiple, malformed, or contaminated cocoons (Mathur and Qadri, 2010). However, it has been observed that farmers in Kashmir are losing a significant amount of their cocoon crop during the spinning stage despite the favorable climate conditions that are conducive to the rearing of bivoltine silkworms (Khan, et al 2010; Malik and Khan, 2010). This is due to the fact that imperfect or deformed cocoons are generated due to the use of improper or inadequate mounting materials (Rashid et al., 2018). Lack of literacy, knowledge, resource constraints and ignorance are the reasons that deviate women from using advanced practices and hence hesitate to establish their venture(Baba, 2013). Also, due to lack of new innovative equipment like Flame gun, Chawki Leaf Chopper , Semi-humidifier cum heater, matured silkworm separator, Power Operated Sprayer for application of chemicals etc. (Chanotra & Bali, 2019) rearers suffer in terms of performing the various activities of

silkworm rearing and face loss in cocoons production (M. A. Bhat et al., 2020). The main barrier to technology adoption and silkworm rearing is also lack of technology transfer. Rearers also reported a significant loss in cocoon production due to a lack of post-harvest technologies. Moreover to increase economic returns and rearers efficiency, technology transfer should always be simple and practical (Prabakar, 2016).

One of the participants narrated that

*“It is the technology which has been introduced in sericulture to cultivate silk worm cocoon efficiently but due to lack of such equipment and proper awareness regarding new techniques we are not able to cultivate silkworm cocoons in larger quantities.”*

3. *Damage Caused by Infections and Diseases:* During the process of raising silkworms, diseases can occasionally infect the larvae. Rearers speculated that this was most likely due to the poor quality mulberry leaf (K. A. Wani & Jaiswal, 2011). During molting phase silkworm larvae's need proper hygiene and frequent cleaning of rearing trays as they shed off their skin 4-5 times. At this stage they become prone to various viral, fungal, microsporidian, and bacterial diseases like flacherie, Pebrine, muscardine, etc. (Srinivas, 2001). Also, cocoons containing dead pupa or spinning by infected silkworm which dies inside either at larvae or pupa stage, and causing stains (National Bureau of Agricultural Commodity and Food Standards, 2012). There are various reasons which cause damage to silkworms among them one of the reasons is lack of scientific knowledge of silkworm disinfection which is essential to prevent silkworms from contracting these diseases and infections (Dar et al., 2021). Consequently, there is a dearth of effective female entrepreneurs in sericulture farming because they are unaware of the improved rearing technologies, such as high-yielding silkworm varieties, disinfection, and improved rearing technologies, among others. This causes low cocoon production and generates low income



(Bukhari et al., 2019). Dissemination of scientific knowledge among rearers will help them in production of healthy and good quality cocoons.

Regular extension wing intervention and its effective delivery are necessary to popularise the improved practises and technologies of sericulture farming. Group discussions, demonstrations, film screenings, exhibitions, and field days are some of the common extension methods that help in establishing communication channels in the form of extension support to develop educational interaction with rearers (Prabakar, 2016).

Further one of the Participants added

*“Rearing silkworms is delicate job as they can easily catch diseases due to little variations in their surroundings. Moreover, due to lack of proper knowledge regarding the utilization of disinfectants we lose silkworms to diseases and our money, time and hard work goes waste.”*

## **B. Social barriers:**

1. *Gendered extension services:* In terms of operations performed and labour hours devoted, women perform the majority of tasks by themselves. Therefore, in a certain sense, women play a significant role across a range of work activities. Women are regularly involved in mulberry planting, weeding, manuring, irrigation, leaf picking, shipping, and storing in sericulture. When raising silkworms, they are also involved in leaf cutting, feeding, bed cleaning, worm spacing, mounting, harvesting, and disinfection (Bukhari et al., 2019). But women’s lack of access to extension services, land, resources, and lack of professional opportunities in extension services due to socio-cultural defined roles and identities is considered to be one of the chief restrictions for increased agricultural output and productivity (Jana, 2018).
2. *Exploitation by middlemen:* There is non-availability of easy market support for women-supported resource centres and women-friendly technologies. As a result, women rearers

confront more problems with intermediaries because they rely more on them, and their margin of profit is higher, resulting in a higher selling price (Purusottam et al., 2015).

### **C. Institutional factor**

1. *Inadequate Finance for Investment in Sericulture:* Comparative to other agricultural sectors, microcredit and enterprise credit systems are not available locally. Soft loans and subsidies are also very less in sericulture (Board et al., 2016). Even though credit are currently provided for these purposes under various anti-poverty programmes, it appears that the commercial banks are either reluctant to lend to rearers or the credit given is low (Moharana, 1994).

Furthermore, as agriculture and allied industries have evolved, the sericulture sector has received less attention and has fallen behind in terms of development; as a result, farmers are lacking fundamental requirements (Sharma & Kapoor, 2020).

2. *Price fluctuations:* Unpredictability of prices in international silk markets and excess import of raw silk from foreign countries at low costs are also one of the reasons for decline in sericulture industry in Kashmir (Raveesha et al., 2016).

### **D. Political factors**

The situations caused by turmoil made it difficult for women folk to fetch leaves from distant places and thus hampers rearing process. Nearly two-thirds of the state's silk production used to come from Kashmir, which was regarded as the industry's primary supplier; however, political instability caused by conflict has reversed this trend (M. A. Bhat et al., 2020).

### **Impact on Women Rearers**

Women, who are playing a great role in sericulture farming through their significant participation have been impacted in several ways because of various factors of its decline in Kashmir. The major limitations met by women in sericulture farming are lack of literacy & awareness of improved technologies, scarcity of raw material, price fluctuation and basic

necessities associated with sericulture farming. Despite constraints, women participate in sericulture activities for economic reasons. They are losing one of the potential livelihood options and a significant way to develop socio-economically. Also, facing several issues which have further exaggerated their hazardous living. Some of the issues faced by them are highlighted below:

### **A. Insecure Occupation**

Sericulture farming, despite having a glorious past in the valley, is now witnessing a decline due to dearth of mulberry leaves, reduction in the number of silkworms rearers, government monopoly, political turmoil in the UT, lack of advanced infrastructure, diseases in silkworm, etc (M. A. Bhat et al., 2020). Such factors make sericulture farming insecure and put rearers in distress.

One of the Participants added

*“I have often thought of quitting silk worm rearing because of unavailability of adequate quantity of mulberry leaves but due to poverty I cannot afford to sit idle so I keep doing it as per the availability of mulberry leaves to me.”*

Similarly, another Participant

*“Rearing silkworms has become risky job for us as they can easily catch diseases and also due to lack of alternative occupation in the rural areas, we have to face hardships.”*

Due to the climate in Kashmir, silkworm cultivation is not a year-round endeavour, but rather lasts only three to four months. Due to the current absence of a heating system, the temperature required for silkworm growth cannot be maintained when Kashmir's climate drops unexpectedly. The result of which is a great loss to the rearers. Moreover, silkworms are prone to diseases during the course of rearing and that is probably either due to low

quality mulberry leaves or improper disinfection methods. Silkworms need sufficient quantity of mulberry leaves in later phases of growth, but due to inadequate availability of mulberry leaves silkworms produce low quality cocoons. Silkworm rearers have become vulnerable to livelihood insecurity which resulted in decrease of their regular income and unavailability of livelihood to them. As already being economically weaker section of society, they hit hard due to these factors that make sericulture farming an insecure occupation and they have to sustain their lives upon minimum standards. Which further thrust down their status and they have to suffer from shackles of poverty.

### **B. Decline in Economic Agency of Women Rearers**

Sericulture is subsidiary in nature but it allows rural women to earn a good amount of money which helps them in augmenting their family income. Women's contributions to the sericulture sector have shown that this occupation provides a great way for rural women to earn a living and alleviate unemployment. (Parimala, 2009).

Participant opined

*“After the decline of economic value of silk worm rearing, I am not able to contribute same amount of money to family expenses as I used to do before and also not able to pay school fee of my children on time which has been one of the benefits of rearing silkworms”*

Participant said

*“Silkworm rearing has enabled me to generate the various assets that can further help me to improve socio-economic status of my family”*

Sericulture farming helps women to become economically empowered which reflects in their contribution to family income directly. Also, provides them opportunity in decision making that enables them to gain recognition in family. Sericulture farming helps women to augment

their levels of social welfare in several ways like self-esteem, house-hold income and make self-dependent. Women used to spend their earnings upon the education and other necessary expenses of family. Also, to generate various assets like cattle, land, and other useful things that ease out the work of women at home. Now due to decline in sericulture farming in Kashmir women who are associated with it, their participation got hindered, so is economic empowerment, decision making, assets formation, etc. Decrease in the rates of cocoons are preventing the rearers from derivable higher returns. Depending on the demand and supply of Indian silk, the government should make the appropriate policy decisions to protect the rearers from these price variations.

### **Conclusion:**

Jammu and Kashmir's agro-climatic conditions are ideal for the growth of the silk industry, yet the region only produces a tiny amount of silk each year. The silk production has dropped by half over the past five decades, a rate that equates to a yearly loss of one percent. There are various factors responsible for the decline of sericulture farming in Kashmir. Some of the factors are: scarcity of raw material, adherence to traditional practices and dearth of new innovative equipment, inadequate finance for investment in sericulture, gendered extension services, and lack of improved technological knowledge. Now, women who constitute over 60% of those who are employed in downstream activities in the sericulture, their significant participation have been impacted in several ways. It is a remarkable option of occupation and helps in the eradication of unemployment problem among the rural women. Despite constraints, women participate in sericulture activities for economic reasons. It has been revealed through field insights that silkworm rearing is subsidiary occupation in Kashmir and opted by women who belong to the household of economically weaker section. Moreover, women are heavily involved in all activities, with the exception of those that require them to leave their homes, such as gathering planting materials and purchasing fertiliser and manure.

They also acknowledged that silkworm rearing has assisted them in supplementing their income. But, due to decline in sericulture farming from last few decades in Kashmir, the participation of women got hinder due to several issues. Some of the issues faced by them have been addressed in this study like sericulture farming has become insecure occupation as they have become vulnerable to livelihood insecurity which resulted in decrease of their regular income and unavailability of livelihood to them. Secondly, due to decline in sericulture farming in Kashmir women who are associated with it, their participation got hindered, so is economic empowerment, decision making, assets formation, etc.

There is potential for setting up practical training, implementing acceptance-motivating programmes for novel concepts and technologies, and taking part in numerous extension activities run by research personnel. Expansion of mulberry plantations land and proper utilization of already existing mulberry nurseries in the Kashmir region. The State and Central Government Agencies should inform the farmers about the various loans and subsidies (with low interest to the sericulturists) available to help them with their financial difficulties. More and more SHGs can be encouraged to pursue sericulture as a business venture. Also, strengthening ties between government, universities, businesses, non-profit organisations, and professionals in the sericulture sector can contribute to the rise of sericulture farming in Kashmir.

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