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Silken Threads of Progress: Crafting A Bright Future For Assam's Sericulture

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ABSTRACT

This paper presents a comprehensive analysis of the silk industry's growth in Assam over the past 27 years, focusing on the promotion of sericulture-based entrepreneurship. Assam's unique silk fabrics have earned global recognition due to their distinctive textures, designs and traditional beauty. While factory-made silk remains in high demand, Assam's handloom silk retains its allure owing to its individuality and character. Despite this burgeoning demand, Assam's silk production has struggled to capitalize on its industry potential. This study examines the growth of raw silk production, the functions of the silk value chain, challenges faced by farmers, and strategies for catapulting the silk industry in the state towards greater heights.

Introduction

Assam, the largest northeastern state in India, boasts a cultural heritage and abundant natural resources. With borders shared with Bhutan, Arunachal Pradesh, Nagaland, Manipur, Bangladesh and others, Assam spans 78,438 sq. km (Barman & Neog, 2024). Its population of 31.2 million contributes 2.58% of India's total population (Census, 2011). The state's economy thrives on agriculture, including tea, ginger, litchi, lemon, and renowned Assam muga silk (Gogoi, et al., 2022).

Sericulture is a significant traditional occupation in Assam, providing sustenance for communities through meticulous silkworm rearing and host plant cultivation (Borgohain & Borah, 2022). India's exclusive production of four major silk types - mulberry, tasar, eri and muga is due to Assam's commitment. The state boasts a diverse array of silk types, with the crowning jewel being muga, the resplendent golden silk exclusive to this region. Alongside muga, there exists mulberry (known as "pat") and eri, with the latter being favored for crafting warm clothing. Muga and eri silk, classified as non-mulberry silks or "vanya silks," bear an intimate connection with Assamese matrimonial customs and various traditional festivities (Gogoi, 2016). Within the global textile landscape, traditional handloom silks endure as an embodiment of unrivaled charm (Sen, 2016).

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These handcrafted creations surpass their factory-made counterparts in terms of texture, design intricacy and an unmistakable aura of personality, character, and timeless beauty. Each hand-woven silk piece is a work of art unlike any other (Nayak, 2015). The weaver's individuality, her inherited craft mastery and her intuitive grasp of color and symmetry all merge to birth a singular masterpiece. Assamese women, through their looms, weave narratives of enchantment. In a past era, the ability to weave held substantial bearing on a young girl's eligibility for matrimony, an aspect that may account for Assam's distinction as the Indian hub with the highest density of handlooms and skilled weavers (Mahan B, 2012).

Assam's sericulture diversity includes tribal weaves like Mirijim, Karbi Anglong and Dima Hasao shawls, and Cachar's Lasingphee bamboo blankets (Okhandiar, 2021), etc. Assam contributes 75.48% of non-mulberry silk, securing a third position in India's total silk production, involving 310,582 families across 8,726 villages (Government of Assam, 2022). The tapestry of Assam's sericulture showcases its commitment to tradition, culture, and economic growth, making it a pivotal contributor to India's silk industry. Despite Assam's historical significance and cultural attachment to sericulture, the sector has not kept pace with its growth potential due to various systemic, socio-economic, and technological challenges (Jaiswal, 2019). Limited adoption of improved sericultural practices, lack of market infrastructure and inconsistent availability of quality inputs have restricted productivity and profitability. Moreover, while Assam contributes a substantial share of India's raw silk, a holistic and empirical analysis of its silk value chain remains inadequate in existing literature. There is an urgent need to identify bottlenecks and suggest region-specific strategies for strengthening sericulture-based livelihoods. This study was undertaken to fill this critical research gap by analyzing the long-term production trends, assessing the structure and functionality of the silk value chain, and proposing actionable recommendations for policy and practice to revitalize Assam's sericulture industry.

Materials and Methods

The research methodology employed a blend of primary and secondary data sources to ensure a thorough and insightful analysis. A meticulous examination encompassed a wide array of resources related to Assam's sericulture throughout 1993-1994 to 2019-20. Secondary data was drawn from diverse sources, including textbooks, scholarly research articles, official documents from Assam, annual reports by the Central Silk Board (CSB) and the Ministry of Textiles under the Government of India, along with other pertinent literary works. These secondary materials formed the foundational basis of the study's insights. Primary data were also collected through a structured interview schedule with 60 sericulture farmers from Assam during 2024-25. Utilizing a pre-tested interview schedule ensured the reliability and relevance of the gathered data. This approach facilitated a deeper comprehension of sericulture practices directly from the perspectives of those engaged in the field in the region. Moreover, comprehensive discussions were conducted with officials from the state sericulture department and officers from the CSB. These dialogues yielded crucial insights and information to achieve the study's objectives. The synthesis of both primary and secondary data sources collectively enhanced the robustness and thoroughness of the analysis carried out in this research.

Results and Discussion

Amid 1993-1994 to 2019-20, different silk types reveal diverse raw silk production trends, depicted in Figure 1. Eri raw silk displays a positive Compound Annual Growth Rate (CAGR) of 3.80%, reaching a peak CAGR of 36.32% in 2008-09 and a low of -7.49% in 2000-01. Muga raw silk exhibits a positive CAGR of 10.13%, with its highest CAGR at 25.81% in 2010-11 and lowest at -17.28% in 1997-98. Mulberry raw silk maintains a positive CAGR of 3.53% over two decades, peaking at 49.25% in 2012-13 and falling to -46.67% in 2003-04. Total raw silk growth, encompassing mulberry and non-mulberry, shows a CAGR of 9.40%, with peak and low CAGRs of 33.76% (2013-14) and -9.11% (1997-98), respectively. These fluctuations relate to sudden floods, fluctuations in cocoon costs, labor availability, and urbanization, etc (Singh, 2017, Parameswaranaik J, 2024).

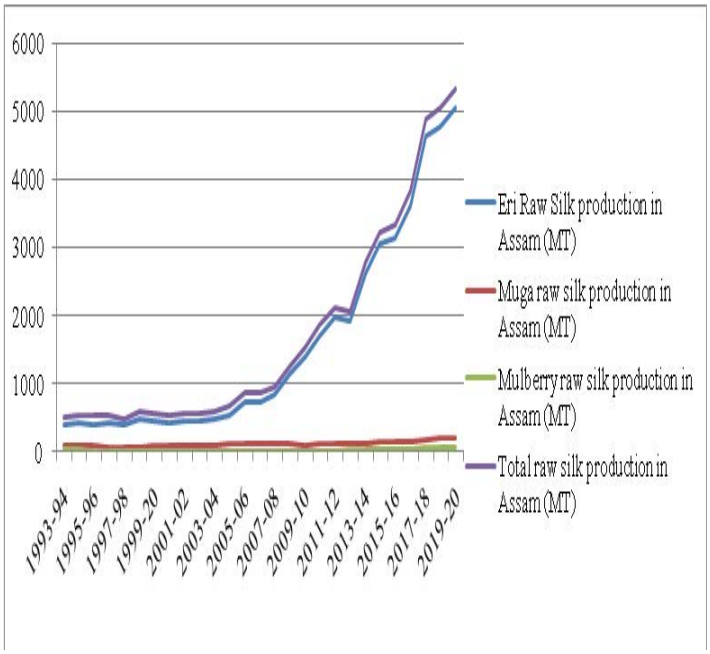

Figure 1. Trends in Eri, Muga & Mulberry raw silk and total raw silk production in Assam

Assam's sericulture stakeholders face diverse challenges. This article addresses the top four constraints, ranked by mean scores.

1 Insufficient Marketing Facilities: Farmers lack access to well-structured markets, hindering their ability to sell silk products (silkworm cocoon and raw silk) effectively and transparently.

2 Limited Market Information: Inadequate information about market trends and demands makes it difficult for farmers to make informed decisions and adapt to changing conditions.

3 Challenges with Low Returns: Farmers face difficulties in generating substantial profits from sericulture activities due to increasing production cost, impacting their income and discouraging investment in the sector.

4 Fluctuating Prices: Unpredictable shifts in prices for silk products lead to uncertainty in income, making financial planning and stability challenging for farmers.

Assam's silk industry is supported by 38 sanctioned sericulture projects under the North East Region Textile Promotion Scheme (NERTPS), aiding overall raw silk production. Projects like Integrated Sericulture Development Programme (ISDP), Intensive Bivoltine Sericulture Development Programme (IBSDP), Eri Spun Silk Mills, and Development of Sericulture in Aspirational Districts contribute to Assam's silk industry growth (Government of India, 2022).

The analysis of the value chain illustrates a diverse range of products that are generated through a sequence of interconnected activities, encompassing input supply, production, processing, and consumption, among others (Sangappa, et al., 2023). The value chain of silk originates with input suppliers, host plant cultivators, silkworm seed producers (grainures), silkworm rearers and cocoon producers, then progresses through reelers, weavers, silk twisters, printers, wholesalers or retailers, ultimately reaching the customers (Sharma, et al., 2021). Within this value chain, numerous stakeholders assume crucial roles. Extensive research has indicated that within the overall gross value of silk textiles, different percentages are apportioned: 56.80% is directed to cocoon producers, 6.85% to reelers, 9.1% to twisters, 10.7% to weavers, and 16.6% to dealers in India. Consequently, a significant portion of urban revenue finds its way back to the villages or seri-farmers (Government of India, 2018, Devi, et al., 2024) the infusion of financial support from diverse channels like NGOs, microfinance institutions, and trade bodies enhances the distribution network (Kumar, 2018).

The current silk value chain in Assam presents a diverse array of benefits and limitations within its fundamental functions. These aspects are elucidated in detail in the subsequent sections:

Input Supply: The foundation of sericulture lies in silkworm seeds called Disease Free Layings (DFLs). These pivotal elements are available through various outlets. Depending on the silk type, specific centers distribute the seeds. These entities, linked with the Central Silk Board and state sericulture farms, are integral to distribution. However, limited private or NGO involvement in this realm poses challenges, affecting the availability of essential inputs and subsequently impacting overall raw silk production

Production: At the core of the silk value chain is the production of silkworm cocoons. In Assam, a majority of sericulture farmers are small scale cocoon producers, operating on an average of 0.5 acres of mulberry land and 50 to 100 DFLs brushing in each crop with only 2 crops in a year. While traditional techniques persist, there's a need for the adoption of improved sericulture farming practices (Bhattacharya, 2020). However, resistance to change from existing methods has impeded the transition (Qadri, et al., 2010).

Processing: The processing phase involves a sequence of steps such as reeling, twisting or spinning, and weaving etc. Much of this processing occurs at the farmers' level itself, with owning handlooms and reeling units (local charka). Small scale farmers tailor fabrics as per local demand, often for occasions like marriage festivals only. This processing function frequently falls under the purview of women at very small scale.

Consumption: The primary output for sericulture farmers is clothing crafted from raw silk due to the perceived higher profitability in selling finished apparel rather than raw silk itself. Some farmers, who specialize in reeling and spinning rather than weaving, vend raw silk to local weavers at varying rates based on the silk type (De & Das, 2010). The allure of Assam raw silk extends both nationally and internationally.

The comprehensive silk value chain is visually represented in Figure 2, shedding light on challenges such as inadequate supporting agencies, overlapping roles among stakeholders and insufficient coordination for value addition. These factors collectively impede the effective commercial utilization of raw silk within the state.

In order to strengthen the Assam's sericulture industry following strategies were recommended to overcome various constraints faced by the silk industry, as outlined in Figure 3.

Strategies for sericulture development in the state

- *Ensuring Continuous Availability of High-Quality Silkworm Seeds:* Efforts should be directed towards ensuring the year-round availability of DFLs, which are essential for sericulture. Utilizing techniques like cold storage or innovative technologies can aid in maintaining a consistent supply of DFLs.
- *The Establishment of Regulated Markets:* A

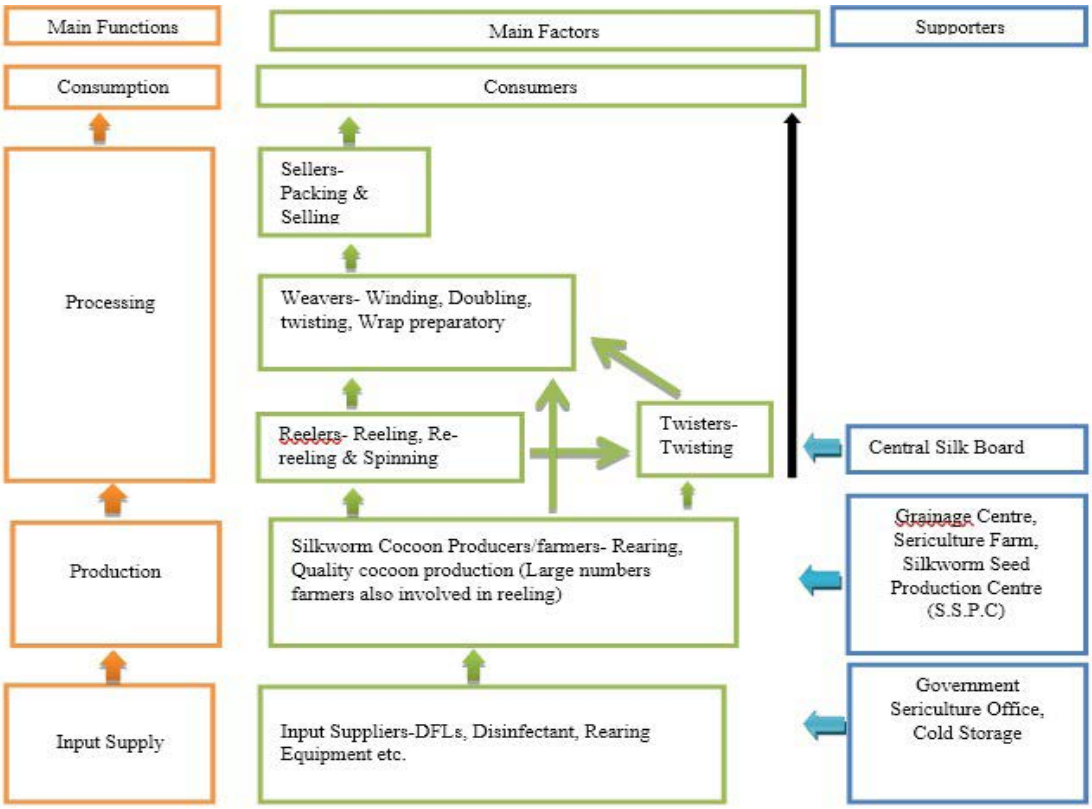

Figure No. 2. Existing Value chain of Assam Sericulture

transformative step would be the establishment of a regulated market in Assam, serving as a catalyst for enhanced sericultural production and productivity. This measure has the potential to significantly uplift the sericulture sector in the state.

- *Scaling Up Dissemination of Improved Sericulture Technologies:* The dissemination of improved and scientific sericulture technologies must be expanded at the grassroots level. By promoting the benefits of these advancements and encouraging their adoption, the yield gap in sericulture can be bridged.
- *Enhancing Quality through Strategies and Technologies:* To address the challenge of maintaining quality, it's essential to provide farmers with tools, technologies, and strategies that enhance the quality of raw silk. Traditional methods combined with modern approaches can contribute to superior silk product outcomes.
- *Branding Assam Silk for Distinctiveness:* Promoting Assam Silk with an emphasis on its unique handcrafted nature can lead to its branding. This branding strategy could facilitate its introduction to new markets globally, further enhancing its reputation and desirability (Das, 2018).
- *Fostering Entrepreneurial Development:* Encouraging the evolution of traditional sericulture farming into entrepreneurial endeavors can invigorate the silk industry. By providing support, guidance, and collaboration from various stakeholders, including public, private, and NGO sectors, the transition to business-oriented sericulture can be facilitated. This shift has the potential to boost silk production and trade within the state (Sulaiman, 2002).

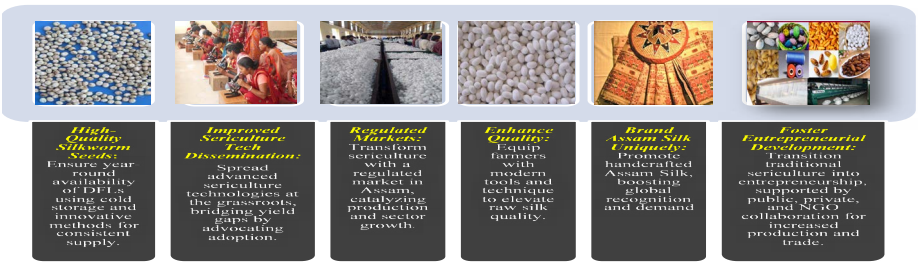

Figure No. 3. Strategies for sericulture development in the state

Conclusion

While grappling with challenges like floods, unorganized market and support system and price fluctuations, the silk industry in Assam has exhibited commendable growth. The convergence of Assam's unique silk varieties with the active involvement of farmers across the production spectrum has been instrumental in this success. The establishment of regulated markets, ensuring the availability of quality inputs, advocating improved practices, brand promotion, quality enhancement, and nurturing entrepreneurship are pivotal to advancing the silk industry. By executing these strategic measures, Assam's silk industry can not only flourish but also make significant contributions to economic growth and cultural preservation.

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